

CASE STORY · STEEL BAR · ELEIKO

# PUMPING IRON

**With more than a thousand world records under its belt, Eleiko has long been the barbell of choice among weightlifters worldwide. How did a small, family-owned Swedish company that specialized in waffle irons become the world's most highly regarded barbell? And what role has Ovako's steel played in this success story?**

Since the 1960s, Eleiko has built a reputation for producing the gold standard in weightlifting equipment. Its bars in particular are known as the world's finest thanks to their feel and performance, which is achieved in part due to a combination of the strength, hardness and flexibility derived from the unique qualities of Ovako's steel.

Eleiko has a long history of supporting the biggest weightlifting and powerlifting competitions around the world. They have been the equipment supplier for many of the world's more prestigious games, championships, Olympics and sporting events including the 2015 Rugby World Cup, the 2016 Rio Paralympic Games, the 2018 Gold Coast Games, and the 2017 and 2018 IWF World Championships to name a few.

"We have a great history of supplying equipment to world class sporting events across the world and it's a real honor every time we are selected" says Magnus Nyberg, Supply Chain Manager at Eleiko.

The Eleiko barbell was the brainchild of one of Eleiko's foremen, an amateur weightlifter. In 1957, he received permission from Eleiko's managing director to develop a new barbell using the company's facilities. At the time, Eleiko mainly produced waffle irons, a popular product in a waffle-loving country.

## **Withstanding the stress**

The foreman's concept was to create a barbell with tempered steel that had the strength and flexibility to withstand the extreme loads of an entire weightlifting competition. In those days, competitions were plagued by barbells snapping under stress, sometimes seriously injuring competitors. At best, they would bend frequently and lose their straightness, requiring several bars to be used for one competition.

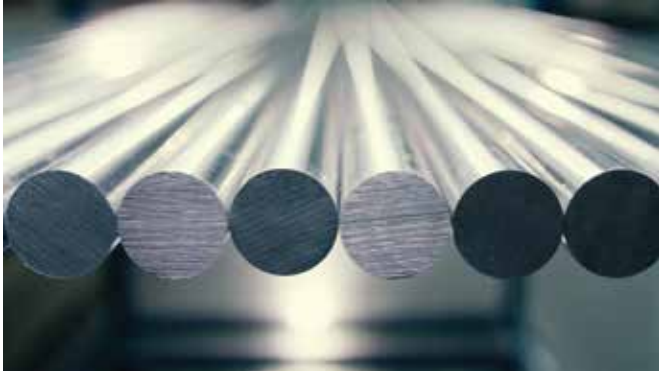
In 1963, an Eleiko barbell was introduced at a world weightlifting competition in Stockholm where it lasted for the entire event – an achievement that caught the attention of the weightlifting community. Soon after, Eleiko barbells were in wide demand, and it wasn't long before it became the world's number one barbell. In fact, some athletes have been known to refuse to compete unless they were lifting an Eleiko barbell.

## **The secret behind the steel**

For several decades, Eleiko's barbells have been made from steel produced by Ovako, a leading European producer of quality steel. Ovako uses a process that sharply reduces the number of micro inclusions or the imperfections that may compromise the strength of steel. As a producer of bearing steels for the automobile industry, where ball bearings are under intense stress for long periods of time, Ovako is highly regarded.

More than one hundred tons of this steel is prepared annually specifically for Eleiko. Ovako produces quenched and tempered bars ground to 28 millimeters in diameter, with an ISO tolerance zone of h8 or less than 0.033 millimeters. The steel bars are delivered to Tibnor, a Nordic distributor of steel and non-ferrous metals, where they are cut to length and then sent on to Eleiko, where the real work in transforming steel bars into world-class barbells begins.

"Eleiko and Ovako have worked together for several decades to develop a steel barbell optimized for Olympic weightlifting," explains Eleiko CEO Erik Blomberg. "To us, Ovako means qual-



ity, reliability and trustworthiness. They consistently deliver high quality products and have strong in-house capabilities when it comes to research and development.”

### The expertise of the Eleiko craftsmen

Eleiko has a team of craftsmen and women who are highly skilled experts at turning Ovako’s steel into the world’s finest bars. The more experienced team members are passing their expertise on to the next generation, growing the Eleiko manufacturing team so they can continue to expand production of the the world’s best barbells for many years to come.

While Eleiko bars continue to be handcrafted, they are using the latest technologies to ensure they continually improve and produce the highest quality bars with optimal performance.

For decades Eleiko turned every bar manually, but in 2013 they invested in their first CNC lathe which enabled them to further improve the quality of the knurling and meet the increasing demand for Eleiko bars. Eleiko invested in another state of the art CNC-lathe in 2017 which has further enhanced production capabilities.

Briefly, the process of building a weightlifting bar involves cutting the bars on the lathe, adding grooves at each end of the bar for the sleeves, and knurling the surface of the bars with a tiny image of a waffle iron, the unique image of Eleiko’s historical core product.

### Getting the knurling just right

Knurling is one of the cornerstones of the “Eleiko feeling” and is a critical part of their manufacturing process. The knurling has to provide a great grip so athletes and user maintain full contact with the bar while lifting without creating sharp edges. The knurling of each bar is controlled by Eleiko’s highly skilled craftsmen so they can ensure it is always perfect.

Once the knurling is completed, the bars are sent to a company that coats the surface with chromium using an electronic process. When the bars return, the straightness is measured and corrected with extreme precision if needed. This step is important for the rotation of the sleeves and feel of the bar-bell. The machine Eleiko created in house uses lasers to measure each bars straightness with extreme precision and then bends the bar with pistons on those areas that need correction. When completed, the bars are hand assembled. The needle bearings and sleeves are assembled and the bar is thoroughly tested for smooth rotation to ensure Eleiko’s high standards of performance are maintained.

### The Ovako production of steel bars

The process begins with melting down scrap in an electric arc furnace (EAF), followed by alloying in a ladle furnace and degassing in a vacuum treatment furnace to lower the hydrogen content. This critical stage of the process results in “clean” steel in which impurities, or micro-inclusions, that may weaken the steel are reduced to a minimum.

The steel is then “teemed” or poured into ingot moulds. After the liquid steel has solidified into ingots, they are “stripped” – a process that separates the ingots from the mould – and then rolled into square billets of 147 mm. Eventually, these billets are sent to the Ovako mill in Hällefors, Sweden, where the billets are rolled into bars measuring 24 to 75 mm. For some customers like Eleiko, the Ovako bars are heat treated, peeled, ground and cut to size before delivery to customers”.

### Ovako facts and figures

- A leading producer of engineering steel for customers in the bearing, transportation and engineering industries
- Products: low-alloy steels and carbon steels in the form of bars, tubes, rings ad pre-components
- Locations: Ovako has ten production sites and a number of sales companies in Europe and the USA
- Net sales 2017: EUR 921 million
- Employees: 3,040
- Since June 2018, Ovako is part of the Japanese steel corporation Nippon Steel & Sumitomo Metal Corporation

### Eleiko facts and figures

- Founded: 1927
- Early products: waffle irons, toasters and other household appliances
- First barbell developed: 1957
- First Eleiko barbell used in an international competition: 1963
- Number of employees: 120
- Number of barbells produced each year: Around 15.000
- Headquarters: Halmstad, Sweden
- Sales offices: Russia, USA, Norway, Finland, U.K, France, Germany
- Owners: Blomberg family

When the bars have passed Eleiko’s rigorous quality control procedures every bar is given a serial number that can be traced back to each specific batch of steel produced by Ovako. The bars are then placed in anti-corrosion bags and paper tubes, at which point they are ready to be shipped out across the world.

### What to expect

Eleiko produces about 300 barbells a week and, as the company, which is headquartered on the west coast of Sweden continues to grow, the numbers are expected to increase. Eleiko recently moved to a new facility in Halmstad that provides room for growth. They company continuously works to manufacture even better products and strives to become the world’s number one company in their sector.