

OUTOKUMPU TORNIO WORKS

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This review was written by Mr. Jorma Kovalainen, General Manager – Special Projects. It describes the history of Outokumpu Tornio Works and our growth to the largest single site stainless steel producer in the world.

Tornio Works History

The Chrome deposit in Keminmaa was discovered in 1959 by accident, when there was a water canal under construction.

Outokumpu got the ownership of the Keminmaa claim in 1960 and started to investigate the ore deposit and to develop a refining process for the metal.

The same year, Outokumpu engaged the first engineer (Siltari) to develop the idea of starting a stainless steel production sometime in the future, while Outokumpu already had some nickel production.

After extensive research and development work, Outokumpu decided in 1964 to invest in ferrochrome, and the production started in Tornio in 1968. A lot of research and development of enriching and metallurgy was needed because the chrome ore was in oxide form that was not refined anywhere else in the world. Similar development was earlier done with copper and nickel productions: in all three cases, Outokumpu has taken in use its own, patented production technology.

In November 1970, Outokumpu decided to start stainless steel production in Pori, southwestern Finland. This decision was overruled by the Government of Finland, which decided that the plant must be built in Tornio (Outokumpu was a state owned company at that time). The decision was preceded by a few years of a political battle, and at the end, the regional employment aspects were decisive.

Stainless steel production (melting and cold rolling) started in Tornio in 1976 with a capacity of 50.000 tons per annum, which was then quite a normal size for such a plant.

Without any investments, production rose to 60.000 tons in 1980, and thereafter, with repetitive investments (the most important was the hot rolling mill in 1988) the capacity was raised to 200.000 tons in 1990, to 600.000 tons in 2000 and is now 1.2 million tons of coil products.

The ferrochrome production capacity was increased in 1985 by a second smelting furnace, and today the capacity is 270.000 tons per annum, which is approximately 4% of the world capacity.

Outokumpu Tornio Works: From Mission Impossible to a Success Story

Building the Finnish stainless steel industry has been a complex story, and the success was not self-evident. Basically, our target has always been the best financial result by using the most functional technology.

The biggest stainless steel production unit in the world is located far from everything but one key raw material of stainless steel: chromium (and hydro power).

In Finland, the big industrial investment projects of the state-owned companies have always been part of the national industrial and regional policy, which was the case this time as well.

There was a tough political battle about the location of the plant but the whole time the company engineers went on planning the plant. A small group of specialists was sent to a fact-finding tour around the world and to perceive potential pitfalls.

Planning/designing and construction was a long project, both carried through by our own engineers. This resulted in new know-how inside the company, which is still in use in Tornio.

The decision to build Tornio Works was a new opening to Outokumpu and, little by little, it converted a traditional copper and mining company to a steel company.

A long-term contract of know-how exchange was made with Krupp AG. It was certainly beneficial for both sides because, from the very beginning, Outokumpu also developed its own knowledge and practices on how to develop quality and productivity. Product quality and good service to customers, as well as productivity, have always been the main targets. We had to show our customers that even being far away and a beginner, we were able to ensure competitive quality and service, and at the same time, be profitable. The latter was naturally a key factor in future organic growth through investments.

Main Obstacles on the Road to the Market

Personnel and Technology

We were in a totally new business with no experience. We had taken in use a lot of new, challenging technology. Personnel were, generally speaking, young and had little or no experience in industrial work. In the beginning, the company management in Helsinki feared that we would not get the needed university level engineers to work in Tornio, but this has not been the case.

Sales and Marketing

Not one of us had worked with stainless steel export markets. Finland, as a country, was almost unknown among the potential stainless steel customers and was seen to be “outside” of the western market economy. Potential foreign customers did not trust that we could supply stainless steel the whole year around because the Baltic Sea is frozen during winter until April-May.

The time needed to transport the steel to the markets seemed dreadfully long and, accordingly, the freight costs in both directions (we also buy a lot of supplies and raw materials from outside Finland) were an extra burden.

As a consequence of a serious steel crisis at the end of the 70's and in the beginning of the 80's, import licenses and other barriers were set in Europe and in the USA. Our exports faced these problems in Europe until Finland became a member of the EU.

Strengths

Not one of our competitors took our investment seriously, and they were quite sure they would witness a catastrophic conclusion. Even the EU (CECA) was totally surprised when we started selling steel in Europe.

We had the best and the newest technology and young, extremely well motivated, enthusiastic personnel that wanted to show that we could be successful.

Since the beginning, we have had a strong, northern team spirit, which we could also call “tribal spirit”, and it was probably even strengthened by the victorious location fight.

We all had a common goal and we were aware of the pessimistic thoughts concerning our success possibilities.

There were no bad habits or traditions from the “old industry”.

We had a know-how contract with Krupp, an experienced stainless steel producer.

Our owner was a relatively big state-owned company, who had copper, zinc, nickel and chrome mines, refining and sales. The company also had a long tradition of facing and overcoming big challenges, especially on the technical side. Outokumpu was known for being able to create patents and to develop metal refining processes. A good engineer was a king!

A key factor has been, and still is, an exceptional integration: in a relatively small geographical area we have the chrome mine, ferrochrome plant, stainless steel melt shop, hot rolling, cold rolling and finishing lines. This exceptional integration further includes sales, procurement and financial reporting: all in one place. This, along with the local culture, is a key factor to fast, easy and good communication, supporting teamwork and team spirit.

Human Resources

Roughly 80% of Outokumpu Tornio Works' personnel originate in the northern part of Finland, in Lapland and Oulu provinces, especially Lapland. We also have experienced employees who are originally from Finland but who have worked in southern Finland or Sweden, sometimes even in the steel industry, and who then wanted to move back to their roots.

Engineers and other personnel with university degrees have, until now, been quite easily available and ready

to work in the north. Metallurgists graduated, in the beginning, only from Helsinki Technical University (HTU) and, since the 90's, also from the University of Oulu. Our Mining Engineers come from HTU and Process and Mechanical Engineers mainly from Oulu.

Our economists come mainly from Oulu, Rovaniemi and Vaasa universities.

Bachelor-level engineers come from Kemi-Tornio, Oulu, Jyväskylä and Tampere. Tornio Works ITC personnel have studied mainly in Kemi-Tornio and Oulu.

We have a long-term contract with the local educational system to teach and train specialized workers according to our needs.

In the future, we will get professionals from all levels in the same way we do today. In order to be in a position to fulfill our needs, we must have collaborate well with the educational institutes, especially in the north, and we must have a reputation of being an attractive employer.

Today

Today Outokumpu Tornio Works is, as a stainless steel production unit, the biggest in the world. We own the key raw material needed in stainless steel production: chrome. We have in recent years invested 1.1 billion Euro in the latest and most modern production lines and environmental protection. Our new RAP (Rolling, Annealing and Pickling) line is a unique one in stainless steel production and offers, along with all other modern and efficient production lines and unique integration, a competitive edge for many years to come. Our cost efficiency makes us strong.

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