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Japaness Steel Industry View
from Overseas-2

The Stainless Steel Industry of Japan

Impressions of a German visitor from his various visits to
the stainless steel companies in Japan

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Worldwide, stainless steel has grown from strength to strength in recent decades, at rates far higher than any other metal. Thanks to its various positive attributes and ever new applications, stainless steel is universally predicted to keep on growing at rates in the region of 5-6%

On the part of the stainless steel industry this success story has been made possible by

- improvements to existing stainless steels and the development of completely new grades
- improvements to material properties and processing capabilities
- new and improved production technologies
- targeted market development programs.

A major part in the worldwide growth of stainless steels in recent decades has been played by the Japanese stainless industry.

During my long career in the stainless industry, I have frequently had the opportunity to exchange experiences with Japanese firms and visit their plants. These mutual contacts have been a constant source of ideas for me and given me an insight into the high technological standing of the Japanese stainless industry.

The impressions I as a foreigner have gained of the Japanese stainless industry are of course subjective.

I make no claim that they are complete or even correct.

Technology :

Stainless steel was invented at 1912 but it was only 50 years later that it began to be produced industrially on a major scale. The industrial development of stainless steel was driven above all by Japanese producers.

A key prerequisite for market success was the ability to produce large volumes at low cost. For this, new production technologies were needed, which the Japanese producers developed in an impressive manner. New processes such as steel making in electric arc furnaces with downstream converters, continuous casting, multi-roll cold rolling mills and high-speed annealing and pickling lines were developed in rapid succession jointly by Japanese producers and equipment makers.

Japan's role in developing new technologies continues today, for example in the production of ferritic steels by the blast furnace route and in the development of strip casting processes suitable for large production volumes.

Japanese producers have also played a big part in the development of stainless grades and surface finishes.

The consistent quality and delivery performance of Japanese producers is world-renowned.

The many experts from around the world who regularly visit Japan, the reports published in technical journals and congresses and the patents that have been granted give us a picture of the leading

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role of the Japanese stainless steel industry.

Plant visits provide the opportunity to see first-hand the high technical standards of the production facilities. In terms of layout, infrastructure, logistics and environmental protection, Japanese plants are state-of-the-art.

What impresses the visitor is the almost proverbial cleanness of the plants and the discipline of all managers and workers. This also explains Japan's outstanding position in the field of accident prevention.

The kaizen movement has obviously exerted many positive influences of business processes. The idea behind kaizen, of involving employees at all levels in a continuous improvement process, is put into practice each and every day. Foreigners can only admire how small teams of workers address work-related questions such as quality, safety and costs and make proposals which are implemented by the management.

Costs :

In recent years Japan has suffered more than other industrialized countries from a recession that is only slowly being overcome. The stronger yen has made matters worse. The recession also hit the stainless steel industry, which was faced with sharp price falls in its traditional export markets. In addition, labor costs and electricity costs are high by international standards and harm the competitiveness of Japanese firms.

Profit improvements are therefore necessary to secure competitiveness in the international marketplace. I feel that a cyclical recovery will not be enough to improve decisively the profitability of Japan's stainless manufacturers. How to meet this challenge is of course a matter for each individual company to decide.

From a foreigner's perspective, it seems that in addition to the disadvantages in the cost structure that can hardly be influenced directly (exchange rates, electricity, labor), there are a number of notable differences between Japanese producers and their international competitors. I do not mean to overemphasize or generalize these differences, but I

feel that :

- Japanese producers operate a larger number of production lines than their foreign competitors (with comparable capacity),
- the number of individual operations needed to produce comparable products is higher,
- the range of grades and surface finishes on offer is more complex. Frequently there are several analysis variations for one grade
- marketing is concentrated on the next stage of processing, with close consultation between producers and their direct customers. This evidently results in processors making special requests and producers fulfilling them. Producers try to retain customers by means of "specialized products".

These production principles, which I have perhaps oversimplified, increase the cost of production on top of the negative factors beyond producers' control (exchange rates, electricity). It is difficult for an outsider to gauge whether the higher selling prices by international standards for stainless flat products in Japan are enough to cover these higher production costs.

Standardization of Product :

In contrast to this, competitors in Europe for example have concentrated their efforts on standardizing their production more and more with a view to cutting costs.

This is reflected in :

- a reduced number of operations to produce comparable products (e.g. grinding, intermediate annealing),
- a concentration on a low number of high-output production units,
- a wide standardization of grades, with most customer requirements covered by standard grades. "Specials" are limited to the necessary minimum.
- a joint marketing approach by producers, targeted primarily at end users rather than first-stage processors. In Europe for example this is done via Euroinox, a joint marketing initiative by the major European producers.

Further developments :

Along with the rapid developments that are taking place in information technology, another factor of major economic significance is the phenomenon known as globalization. Both within national boundaries and worldwide, companies are concentrating on their "core business" and linking up in larger corporate entities. The advantages of these link-ups are synergies on the cost side (e.g. administration and selling costs, R&D expense) and a greater market presence.

In addition, new technologies are emerging requiring new production facilities and forcing the traditional manufacturers to restructure. The opportunities and risks associated with this can be managed more easily in larger companies, who are also more capable of handling the increased capacities delivered by new high-performance equipment without disrupting the market.

Germany, for example, which has only a slightly smaller population than Japan, now has only one stainless flat steel producer. The number of producers in Western Europe has decreased over the years by more than half to five, resp. four.

In comparison, Japan has six independent stainless flat producers, selling a product that has become more and more a "commodity" on a world market that has become more difficult. The recent cooperation agreements between the hot strip, long products and tube companies we have read about in the press in recent weeks show that Japanese producers, too, have begun to question their traditional structures.

These alliances will help solve some of the problems.

The key questions for the future of the plants are

- the available technical capacity for the future and utilization of same,
- the capacity requirements of the plants resulting from decisions on capacity,
- securing the investment required in the coming years.

These measures can be carried out by the companies on their own, through cooperation with other companies or - as in Europe - through mergers concentrating on the core stainless business. These are difficult strategic decisions which must be made by company managements.

The cooperation agreements show that Japanese producers have started to develop beyond their company boundaries and are thinking about larger alliances. This is in line with practice born of economic necessity throughout the world. If this development continues, the Japanese stainless industry will emerge from the country's economic crisis stronger and remain a serious partner on the world market.

Conclusion :

Stainless steel has been a great success story in the last few decades, marked by rapid market growth.

Production technologies have evolved which have become standard internationally.

Around the world capacities have been expanded and new suppliers have emerged. For a time the capacity growth exceeded market demand, although meanwhile most of the overcapacity has been absorbed. Production is forecast to grow at similar rates. The competition for market shares will continue.

For the critical observer it will be interesting to see how the stainless producers face up to the challenges of the future, with different organizational forms, with different strategies and with the newly evolving technologies, and how successful they will be.

I am sure that the well known Japanese companies will find their way and continue to play a leading role in the stainless world.

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