

The Highly Developed Productivity of Beijing Hyundai Motor Company

Automation Technology is the Strength Behind Its Brand Power

Hyundai Motor Group owns the highly productive Beijing Hyundai Motor Company (Beijing Hyundai), one of the leading companies in China's automobile industry. CC-Link is used in the production systems of the plants of Beijing Hyundai. Ms. Naomi Nakamura, the global director of the CC-Link Partner Association (CLPA), visited the plant and talked about the automation technology's capability for company development with Mr. Chang Jae Lee, General Manager of the Production Planning Department Production Division, and Mr. Kang Won Kyu, General Manager of the Maintenance Department team

Ms. Nakamura (hereinafter: N): Beijing Hyundai is one of the Chinese automobile companies that have rapidly grown in recent years, isn't it?

Mr. LEE (hereinafter: L): Beijing Hyundai was established on October 18, 2002 as a joint venture company of Beijing Automobile Works and Hyundai Motor Company (Hyundai). We mainly produce compact cars with 1600-cc or lower displacement engines and SUVs, which are products in the premium market segment, such as "Accent", "Verna", "Elantra", "i30", "Moinca", "Sonata", and "Tucson". Our production has been rapidly expanded with the growth of China's automobile market. The production capability at the time of foundation was 50,000 cars a year. However, we can now produce one million cars a year. Our production capability has been increased by 20 times in the 10 years.



Ms. Naomi Nakamura
Global Director of CLPA

N: Does the increase in the production capability mean that Beijing Hyundai greatly strengthened the production facility in the past 10 years?

L: We have three completed-car plants in Beijing. They are the 1st plant, which has been operating since the foundation of the company, the 2nd plant, which was built in 2008, and the 3rd plant, which started its operation in 2012. The 1st plant was owned by Beijing Automobile Works first and produced trucks as the main product. We used its building and introduced the latest equipment into it. We built the 2nd and 3rd plants. Each plant is capable of producing approximately 300,000 cars a year. The total production capability is about one million cars.

The production facilities of the 2nd and 3rd plants were constructed based on the production facility designed by Hyundai in South Korea. In the production facility of the 1st plant, the existing equipment was used in its pressing line of the body factory. However, the latest equipment designed by Hyundai was used in the paint shop and the assembly shop. I don't think that the production facility of the 1st plant is inferior to those of the other two plants.



Chang Jae LEE
Beijing Hyundai Motor
Company, General
Manager of Production
Planning Department
Production Division

World's Top-Level Production Capability

N: If the number of production lines has increased the production volume and widened the product types, the production plan has to be complex.

A stricter production plan must have been designed following the expansion of the production facility.

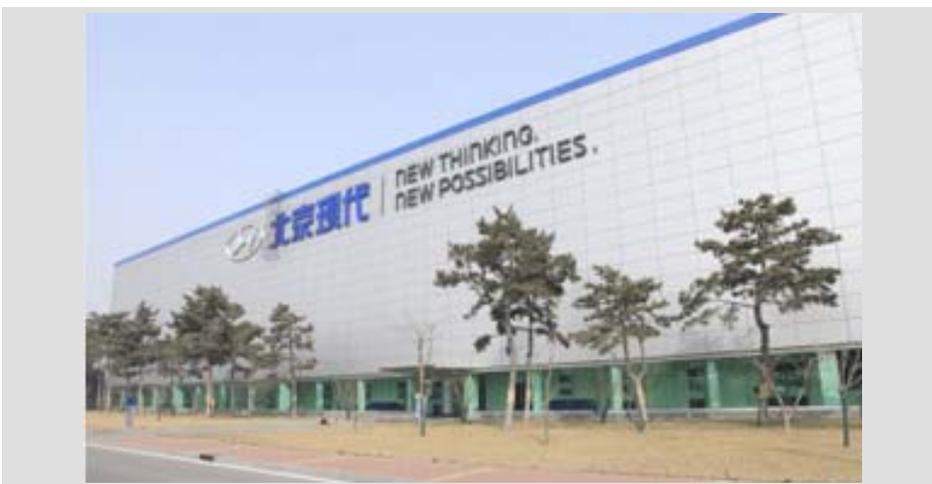
L: Exactly. In Beijing Hyundai, my division Production Division is playing such a role. Production Division mainly designs the production plan for the three plants and manages those plants. Production Division also considers the production system when we are to launch new-model car production. The basic design of the three plants was done by Hyundai, but our department considers various plans to improve the production efficiency of the three plants. We suggest improvement plans to Hyundai based on the result..

N: We heard that the three plants have one of the best production efficiencies of all of Hyundai's global production bases.

L: Sure, the three plants are highly developed in productivity. In a report created by an outside research company, the three plants were selected as one of the top-10 most productive plants among 130 plants in the world. The production volumes per hour of the 1st and 2nd plants are at the top level in the completed-car plants of Hyundai Motor Group.

- N:** There are lots of approaches to improve productivity of a plant. I think the most important approach is automation. The automation technology is especially capable of improving productivity with high quality, I think. How does Beijing Hyundai about automation of the production lines?
- L:** In China, where we can acquire relatively-inexpensive manpower, increasing the automation rate does not directly lead to a business advantage. I think that we must promote automation considering various conditions. However, the manpower cost in China has rapidly increased in recent years. Many companies may start promoting automation more and more as the manpower cost increases.

In my opinion, the automation rate of Beijing Hyundai leaves other China's automobile manufacturers way behind. The automation rate of the body factories is especially high. For example, the pressing process and the body assembly process of the body factory in the 2nd plant are fully automated. In the body assembly process, many robots are operating and enable production of 73 cars per hour.



CC-Link Plays an Active Role in Body Factories

- N:** Promoting automation always requires an industrial open network. The industrial open networks "CC-Link" and "CC-Link IE", which we promote, contribute to automation in factories in various fields, such as automobiles, liquid crystal displays, and most advanced industrial products.

Mr. Kang (hereinafter: K): CC-Link is playing an active role in our plants. As mentioned already, the plant facilities of Beijing Hyundai are based on a facility designed by Hyundai. Several industrial open networks including CC-Link are used in the facilities. CC-Link is used in the section where Mitsubishi programmable logic controllers are used. Specifically, CC-Link is used in the assembly processes of the body factories.



Mr. Kang Won kyu
Beijing Hyundai Motor
Company, General manager
of Maintenance department
team

I think that the conditions required for an automation system depend on the situation of the country or the area where the plant operates. Beijing Hyundai places a heavy emphasis on reliability and usability. We also think that support by device vendors is important. As one of the big advantages of CC-Link is that we can get global support. In fact, we have already received technical support for CC-Link. That was from a service base in South Korea. This is because the basic design of our facility was also from South Korea.

N: "Reliability" is what CLPA also places a heavy emphasis on. The standard of CC-Link is designed to essentially have high reliability. In actual typical production lines, devices provided from several vendors are connected by CC-Link. Even when devices provided from various vendors are included in a system, the reliability of the whole system is essential. Thus, CLPA has established a conformance testing programme to guarantee reliability for when devices provided from various vendors are connected each other by CC-Link.

Automation Technology Contributes to Strengthening Brand Power

L: The automation technology is also important to strengthen our brand power in the market. Our production capability is now at the top level in China. Next, we need to improve the added value of our products and to strengthen their brand power.

One of the important points to strengthen the brand power is to provide attractive products to consumers in a timely manner. To achieve this, we must have a system to produce products in response to requests from the market. We also need to provide high quality. The automation technology is necessary to satisfy these requests.



K For example, the production lines in the 1st plant of Beijing Hyundai are designed to handle six models. However, the production volume per unit time differs depending on the model. Leveling such a difference leads to great improvement in flexibility of the production lines. To achieve this improvement, the cause of bottlenecks must be identified for each model and the operation time of each process must be adjusted to eliminate the cause of the bottleneck. Automation technology is the key here.

When we build a production system that can flexibly respond to changes in the market, we think that industrial open networks will help create a mechanism to prevent failures of the production facility.

The mechanism helps create a production system that can flexibly provide the market with products.

N: I see. The automation technology can contribute benefits to users in many ways.
I'd like you to keep an eye on the developments of CC-Link. Thank you so much for our meeting today.

