New Volvo Cars manufacturing plant in Chengdu: Delivering on global Volvo quality and manufacturing standards

With the establishment of Volvo Car Group’s (Volvo Cars) first Chinese manufacturing plant in the city of Chengdu, a next chapter in the company’s history starts. For the first time Volvo Cars operates a complete manufacturing plant outside Europe. The realization of the plant is an important part of Volvo Cars’ global business strategy and a major milestone within the company’s China growth plan.

“The Chengdu plant is absolutely on par with our European plants in all key areas,” says Lars Danielson, Senior Vice President Volvo Cars China Operations, who was involved in the plant’s establishment from day one. “Whether it is in terms of quality levels, of installed technology and equipment, of working environment and safety or environmental performance, our new plant in Chengdu delivers on Volvo Cars’ standards and requirements.”

The plant is located in the Chengdu Economic and Technological Development Zone, south east of the Chengdu city centre, on a plot area of 500,000 square meters. By the end of this year, the plant will employ a total of approximately 1,100 blue and white-collar workers. Annual production capacity of the plant is 120,000 cars, corresponding to a line speed of 30 cars per hour throughout two work shifts per working day. The first car model to be produced in the Chengdu plant is the Volvo S60L, a long wheel base version of the Volvo S60 specifically aimed at the Chinese market.

The production schedule for 2013 reflects a gradual ramp-up of production with a focus on quality assurance. Currently the Chengdu plant is in the process of producing a series of pre-serial production cars. In the third quarter, the plant will start production of a final series of verification cars on consumer level. Serial production of consumer cars will start in the fourth quarter of 2013, with an expected volume of around 1,500 cars until the end of the year. For 2014, production volumes are expected to amount to approximately 30,000 cars.
Global quality standards
It is important to realize that the cars that roll off the assembly line in Chengdu will be of exact the same quality as the Volvo cars currently produced in Torslanda, Sweden and Ghent, Belgium. The reason for that is not just the global Volvo Cars Manufacturing System (VCMS), but also another global set of standards: Volvo Cars’ global quality engineering, quality audit and quality assurance standards.

“Chinese customers do not have lower expectations than European ones. They expect premium quality products from Chinese plants,” says Lars Danielson. “Customers also have plenty of choice in the highly competitive market in China. That is why we need to make sure that we are credible and deliver high-quality Volvo cars out of Chengdu that are at least as good as the cars we build in our European plants.”

Like the VCMS, Volvo Cars’ global quality standards consist of an extensive series of requirements, processes and demands that ensure that each car leaving a Volvo plant is of the highest quality. This approach is followed throughout the whole industrial cycle: from stringent demands on materials and parts delivered by suppliers to strict controls throughout the manufacturing process, to extensive quality checks after final assembly.

The final assembly line of the Chengdu plant is fitted with the most sophisticated Andon system of all Volvo Cars manufacturing plants. The Andon system installed in the Chengdu plant, which provides employees with the possibility to stop the production line in the event of a complication, is a so-called segmented or decoupled variant of this quality control tool. This means that certain parts of the final assembly line can be halted, while other parts continue to function. By using this approach, any potential loss of production time is kept at a minimum.

Global manufacturing system
An important guideline in establishing the Chengdu plant has been the global Volvo Cars Manufacturing System (VCMS). VCMS is the backbone of all Volvo Cars industrial operations and has been developed over a long time in order to secure that work is standardized and meets the high quality standards Volvo consumers expect from their cars. The new plant in Chengdu is not just developed based on these VCMS principles, but also on Volvo Cars’ vast experience from the company’s existing plants in Torslanda and Ghent. The physical build-up of the plant has been led by highly experienced European Volvo employees in close collaboration with local talent.

Related to that is the important role that teamwork plays in VCMS. The teamwork concept is part of Volvo Cars’ heritage: it is a way of working, used throughout the whole organization. Over many years, close teamwork has proven to be an efficient method to create great results but also to create a work environment that is appreciated by employees. While the concept within VCMS encourages employees to support each other in order to achieve the best possible results, teams are also challenged to develop and improve faster and better than other teams.

This teamwork concept has been brought to the Chengdu plant as well. The plant will have approximately 100 operator teams (6-10 persons per team), each of which will have frequent meetings to evaluate and discuss the work they are doing. The team concept also includes a delegated responsibility. For example, each team is responsible for their own work station, to secure that it is tidy, that things are in order and that everything is working as it should.
Employee training
All employees have been trained for their task according to Volvo Cars’ global training standards. The majority received their training in the plant, either from working side by side with European colleagues or from Chinese colleagues who have been in Europe for training.

Around 100 Chinese employees travelled to Torslanda and Ghent earlier this year, where they took part in a two-month training programme on VCMS as well as the company culture. Following their return to Chengdu, this group of employees has been deeply involved in training programmes for newly hired employees. All new employees undergo an average of one-and-a-half month of training in order to get familiar with VCMS and the Volvo Cars company culture.

Volvo Cars has furthermore established a partnership with a local vocational school in Chengdu under the Volvo Academy umbrella. Volvo Cars sees vocational schools like these as an important potential source for recruitment and cooperates with the school by providing training and equipment for special Volvo classrooms. Groups of students are also provided with training on the job as part of an internship program.

Supplier network
The Chengdu plant will be supported by an extensive supplier network of 115 suppliers for localized parts. Most of these are existing global Volvo Cars suppliers that have production facilities in China, but Chengdu also collaborates with a number of Chinese suppliers. In order to ensure quality of parts, all suppliers to the Chengdu factory are required to meet Volvo’s global supplier management and assessment standards.

All suppliers have successfully passed a strict evaluation process according to Volvo Cars’ global supplier standards. These standards also mean that global quality inspection processes have been adopted in the Chengdu plant. The standards include quality inspections of incoming material and the allocation of quality engineers to specific suppliers in order to provide support and training where necessary.

The involvement of China-based suppliers means that the percentage of locally sourced parts in Chengdu-built cars will be significant. For the Volvo S60L model, the percentage of local sourcing by value will be around 50 per cent. In the longer term, the target is to increase this percentage to 80 per cent overall.
Environment

Volvo Cars’ requirements for the environmental performance of its global operations are equal, wherever the operations are located. All operations must be in compliance with the Volvo Cars Global Environmental Standard, while at the same time allowing for local prerequisites and circumstances. This means that with the Chengdu plant, Volvo Cars has chosen not to compromise when it comes in terms of environmental performance and the factory performs better than what is legally required.

A good example of this approach is the way in which the Chengdu plant deals with waste water. The waste water treatment plant in Chengdu is designed with both chemical and biological treatment steps before the water is released to a municipal waste water treatment facility. While this treatment level is required by Volvo Car Environmental Global Standard, it exceeds local legal requirements in China.

A second good example is that in terms of emissions to air, which are mostly caused by paint operations, the Chengdu plant is designed to perform better than the average car factory in Europe. The paint operations in the Chengdu plant are based on the use of mainly water-based paints and the state-of-the-art paint application equipment used in Torslanda and Ghent. Here as well, the requirement to meet Volvo Cars’ Global Environmental Standard means that the Chengdu plant exceeds legal requirements in China.

Another element of Volvo’s Global Environmental Standard deals with water consumption. Based on the environmental strategy, Volvo Cars has established a global structured approach to reduce water consumption in each of our plants and to implement a global water protection standard in all our operations. This approach applies to the Chengdu plant as well.

With regards to energy consumption, Volvo Cars strives to find a climate-neutral energy supply for all its global operations. For instance, all the electricity used in the company’s European operations is certified hydro- and wind-powered electricity. In China the open market for such a green energy supply is still under development, but it is expected to grow strongly in years to come as Chinese standards become more stringent. Volvo Cars follows this development closely and aims to contribute to the shift from traditional means of energy such as coal, diesel and heating oil to renewable sources of energy.

Volvo Cars also has an overall target to continuously reduce its total energy consumption. With regards to energy efficiency, Volvo Cars has decades of experience from its European operations in terms of energy management, energy monitoring, lean energy principles and so forth. These methods and processes will also be implemented in the Chengdu plant. Some of these principles have already been implemented during the design of the operations in China, while others will be implemented once the operations are up and running.

Working environment, health and safety

Another important element of the Volvo Cars Manufacturing System is to provide employees with a safe working environment. Here again Volvo Cars has chosen not to compromise in comparison with standards implemented in the European plants. Tools and equipment are fully up to European standards. All around the plant tools are installed to support employees with heavy lifting duties.
Special care has also been taken to reduce accidents, in line with VCMS guidelines to systematically remove potential causes for accidents. The overall aim is to ensure that no employee should get seriously injured in the workplace. All drivers of vehicles within the plant have been trained in accordance with Volvo Cars’ in-house traffic rules in order to minimize the risk for traffic accidents. On top of that, the plant is almost entirely free of forklift trucks due to its layout, which further improves safety on the factory floor.

Volvo Cars has a zero tolerance approach towards environmental accidents and has numerous processes and technical installations in place in its manufacturing plants to prevent environmental accidents from happening. Special focus has been placed on the design of areas where chemicals are stored and handled to ensure that no environmental spillage accidents can happen. For instance, fuel and oil tanks have been placed in specially designed underground storage facilities.

The factory is equipped with a medical health centre, which allows Volvo Cars to take care of basic medical needs for its employees in-house. On top of this, the Chengdu plant has a co-operation with a local hospital. Employees are also offered a medical and general insurance package as part of their employment. Rules on working hours and overtime are similar to those in Europe, while all employees get an amount of vacation days that exceeds local requirements.

The plant is adequately heated and cooled in order to deal with warm and cold weather. Special care has also been taken to reduce noise levels in the plant, with noise levels in the press shop not exceeding 85 decibels. The use of light carts instead of fork lifts in the assembly shop also helps making the work environment more silent.

“In establishing the Chengdu plant, we have implemented all cornerstones of our global Volvo Cars standards and processes,” says Lars Danielson. “We have been able to use all the knowledge and experience that Volvo Cars has built up in the Torslanda and Ghent plants for decades. This has been instrumental in securing that we will build cars in Chengdu that meet the same standards as those built in our European plants. I am very grateful and wish to express my appreciation to the whole team in Chengdu and our colleagues around the globe for making this happen.”

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Delivering on global Volvo quality and manufacturing standards

The Volvo Cars manufacturing plant in Chengdu is designed to perform better than the average car factory in Europe. The paint operations in the Chengdu plant are required to meet Volvo’s global supplier management and assessment standards. Each of our plants and to implement a global water protection standard in all our operations. This approach applies to the Chengdu plant as well.

The factory is equipped with a medical health centre, which allows Volvo Cars to take care of basic medical needs. The use of powered electricity. In China the open market for such a green energy supply is still under development, but it is a step in the right direction.

Volvo Cars’ global business strategy and a major milestone within the company’s China growth plan.

Press Release

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