



TOYOTA PEUGEOT CITROËN AUTOMOBILE

PRESS KIT TPCA PLANT INAUGURATION Kolin - May 31, 2005

① The TPCA Production plant	2
Basic information	
Modern concepts	
Production system	
② The Shops	4
Stamping shop	
Welding shop	
Paint shop	
Final assembly shop	
③ Human resources	8
General philosophy	
Health & Safety	
Recruitment	
Training	
④ Corporate responsibility	10
Respect of the environment	
Social responsibility	

① The TPCA Production Plant

Basic information

The TPCA car factory covers an area of 124 ha located in the Kolín-Ovčáry Industrial Zone 60 km east of Prague.

Selection of the TPCA site took place between June and December 2001 and it was decided that the most suitable locality was Kolín in Central Bohemia.

The advantages of Kolín were its central position in Europe, its proximity to important markets, a developed supplier network, and connections to traffic network. Another key factor was the Czech Republic's rich industrial history in connection with the automobile industry.

The target production capacity of the plant is 300,000 vehicles/year, equally divided between the Toyota Aygo, the Citroën C1, and the Peugeot 107. Production will increase gradually from start of production in February 2005 and full capacity levels will be reached by the beginning of 2006.

Plant production is based on a system of 2 shifts/3 teams. Production was launched with one team. The second team will start working in June, and the third team will begin working in October of this year. Mass recruitment will come to an end when the third team starts work.

Modern concepts

The production plant was designed with maximum production effectiveness, consideration for the environment, and high quality working conditions in mind.

All production lines and their distribution were first designed by computer and with the aid of virtual reality and other advanced technology. This enabled all details to be planned during the development phase and for the best spatial arrangement of production technology to be found.

The primary aim was to ensure the effective and non-stop flow of materials, people, and vehicles within the plant. Multiple production line solutions helped to save space and shorten minimum supplier routes. The built-up area of a mere 21 ha is viewed by the automobile industry as a record-breaking low. Modern and compact, this work of architecture requires very low levels of energy consumption to operate technology and run the plant.

Production system

As part of the joint-venture, Toyota was in charge of car manufacturing. As a result, production principles follow the Toyota Production System (TPS), which serves as a reference for almost all automobile manufacturers worldwide.

The Toyota Production System is not a theoretical model that the company applies dogmatically but rather a set of principles that have been tested by everyday use for decades.

The essence of TPS is “kaizen”, or continuous improvement, based on the never-ending improvement of standards and procedures, the aim of which is to secure maximum quality, quality improvement, and permanent elimination of losses and superfluity.

The second principle is “Just-in-Time”. This principle is based on the idea that the production system is managed by natural rules of supply and demand. The result is that parts are supplied to the production process in exactly the right amounts at exactly the right time.

The third principle is “Jidoka”, in other words, the design of machinery and processes in such a way as to allow them to be stopped if a problem occurs.

● The Shops

TPCA is made up of four main shops, namely the stamping shop, the welding shop, the paint shop, and the final assembly shop.

Stamping shop

Area: 19,600 m²

Number of employees: 154 / 3 teams

The car bodies produced at TPCA are made up of approximately 200 parts and weldments. Smaller parts such as safety elements, reinforcements, and weldments are procured by supplier plants. Fifty-one of the larger car body parts are made by the TPCA stamping shop.

The stamping shop consumes 180 tons of sheet plates daily. They are supplied in coils and, in accordance with the Toyota Production System, the supply of coils is maintained at a minimal level and every coil is already allocated to pre-planned production purposes. The stamping shop processes 31 types of coils that differ in plate thickness (from 0.6 mm to 0.9 mm) and in width. The aim is to adapt the size of the plate as much as possible to the size of the pressed piece to decrease the quantity of metal waste.

Stamping takes place on two tandem-lines each made up of four stamping machines with a stamping pressure of 800 to 2400 tons.

It is in accordance with the concept of lean and flexible production concepts that the stamping shop does not produce large series of pressed pieces in stock, but quite to the contrary produces a smaller amount of pieces from each part and alternates the type of pressed parts more often. This is possible thanks to the unique system under which stamping tools can be changed.

The speed with which the TPCA stamping shop can change moulds on the stamping line is among the fastest in Europe. The entire process to change four stamping tools weighing a total of up to 26 tons takes less than 6 minutes. Stamping tools are changed approximately 8 times per day.

Each pressed part undergoes individual quality control procedures and is then sent to the next production process, which is welding. Cut-offs from the stamping process are recycled by Green Metal, which is also based in the Kolín-Ovčáry Industrial Zone.

Welding shop

Area: 19 700 m²

Number of employees: 710 / 3 teams

The welding shop receives large car body parts from the stamping shop and small car body parts from outside suppliers.

The production process starts with the preparation of sub-groups – these are smaller car body units such as doors, floor parts, and roofs. The ratio of automation during the production of sub-groups is around 50%. Completion of large units and of the final car body is performed by fully automated lines working with millimetre precision.

The welding shop houses over two hundred robots of various kinds. During the welding process in TPCA, 2220 welds are made on the vehicle using spot welding and arc welding methods.

Each operation is followed by fitting control, which is the checking of the width of welds, and reinforcement of individual parts. Parts, as well as the entire car body, are specially checked by 3D devices and advanced computer and scanning technology. The last step in the welding process is final quality control where each and every weld, fitting, and car-body surface is again checked on an individual basis.

Paint shop

Area: 18 000 m² (total of all floors 32 000 m²)

Number of employees: 426 / 3 teams

The following processes take place in the paint shop: degreasing and cleaning of car bodies, anti-corrosion ED coating, weld and undercarriage sealing, and primary clear-coating and colour coating.

Cars pass through a baking oven between individual coatings. Owing to the fact that the primary paint and ED coatings are diluted with water, the oven must be heated to 190°C instead of the 120°C that suffice for producer used organic diluents.

The cars are subjected to quality control after each operation and after the painting processes have been completed, the cars undergo out-bound control during which every car is checked individually.

As in all the other shops, maximum flexibility is a characteristic of the paint shop. Cars are not painted in one-colour doses, as is the case with some other producers. Thanks to a modern cartridge robot painting system, colours are selected on an individual basis, varying from car to car, depending on the wishes of the customer for whom the car is being made.

The Cartridge System, which is patent-protected, functions in a way similar to a refill pen. A nozzle is located at the end of the mechanical hand of the painting robot and an exchangeable cartridge is attached to this nozzle. The cartridge contains the exact quantity of paint necessary for the painting of one car body. Once the painting process has been completed, the cartridge is automatically replaced by a full cartridge containing the right colour for the next car to be painted.

The TPCA paint shop boasts a number of unique, environmentally friendly technologies. These include water-thinner colours, a thinner recycling system, and the already-mentioned Cartridge System, which significantly decreases the consumption of paint and thinners.

Final assembly

Area: 35 100 m²

Number of employees: 1250 / 3 teams

Final Assembly is made-up of four primary production divisions, namely TRIM (assembly of cabling, dashboards, heating, and control units), CHASSIS (assembly of engines, gearboxes, and undercarriages), FINAL 1 and FINAL 2 (assembly of other parts, such as bumpers, seats, windows, wheels, etc.).

The design of the assembly line and of individual workplaces has been subjected to thorough analysis: the motions of each and every team member have been examined and assessed to ensure that their movements do not interfere those of another member, that no unnecessary motions are performed while working on a car, that all tools are located at the shortest possible distance, that parts arrive as close as possible to the member, etc.

A specificity of the Toyota Production System is the principle according to which it is possible to stop production processes in the event of a problem or anomaly. Trigger mechanisms are located at each and every site. Usually, these take the shape of ropes hanging along the production line. If a team member notices a problem with a car or the production line, he or she must immediately report the problem by pulling on the rope. Unless the problem is solved, the production line will automatically stop. This guarantees that the problem is picked up at the moment it occurs and that it is prevented from affecting the following process, or, in the worst case, from getting to the customer.

Quality control is a never-ending process in TPCA. It forms part of each and every process and all employees are directly responsible for the quality of their work.

☺ Human Resources

General philosophy

The philosophy of TPCA is to create relations between employees and the company based on mutual trust and respect. The employer must adopt several quite specific obligations in order to fulfil this mission.

First of all, the employer must guarantee employees long-term, stable employment where redundancy is the exception.

Furthermore, the employer must secure an equal and fair approach to all employees; it must support high employee morale and continuously improve working conditions.

The employer must also appropriately motivate and reward the initiative of employees who contribute to the growth of the company.

No less important, are long-term development of team spirit and an atmosphere of mutual cooperation.

Health & Safety

Long term improvement of the working environment is the road to more effective production and employee trust in the company.

TPCA sees occupational safety as a team effort to which both employees and the company must commit themselves. In reality, this means the implementation of high safety standards and compliance thereto, the implementation of preventive measures to decrease the risk of industrial injuries, continuous improvement of the workplace with respect to ergonomics and safety, and high quality training for all employees.

TPCA does not consider an industrial injury to be the mistake of one individual but an insufficiency of the system. The labour process in which the industrial injury occurred must be immediately stopped until counter measures have been taken. Long-term preventive measures are implemented following thorough analysis.

Recruitment

Recruitment began at the beginning of 2003. The organisational scheme was filled from top to bottom, that is, from managerial positions downwards. Mass recruitment of employees for production began in 2004.

January 2005 saw the conclusion of recruitment of employees for the first shift; employees for the second shift were recruited in the spring of the same year.

Currently, employees for the third shift are being recruited and primary recruitment actions will be concluded in the summer.

TPCA's target is to address and select from the greatest possible number of candidates. For this reason, recruitment actions concentrate practically on the entire Czech Republic. TPCA organised recruitment projects in regions with a strong industrial tradition and high levels of unemployment such as Northern Bohemia and Northern Moravia. The ratio of employees from the vicinity (up to 50 km from TPCA) to employees from further away is approximately 40:60.

Employee selection criteria comply with the Toyota Production System. For TPCA it is most important that candidates be highly motivated, be potential team players, and be enthusiastic about learning and continuous self-improvement. These traits were tested during a three-round selection process which also included psychological testing and team games.

Training

Toyota and PSA Peugeot Citroën have high standards for quality and production effectiveness and place the same high demands for quality on their labour force. TPCA provides all employees with a complete training scheme which guarantees that they are qualified exactly as required. TPCA training schemes also enable candidates, including graduates with no experience in the automobile industry, to work for the company.

In 2004, TPCA sent over 700 employees from the first team to Toyota plants in France, Great Britain, Turkey, and Japan, where employees spent a total of 21,150 days. Training courses abroad were brought to an end following the installation of technology at TPCA.

TPCA has invested over 40 million EUR in employee training.

④ Corporate Responsibility

Respect of the environment

Protecting the environment is an integral part of the overall concept of the production plant and its processes. A lean production process based on the principle of reduced losses and waste results in lower energy consumption, savings on materials and natural resources, minimized waste etc.

In 2004, following a thorough analysis of the impact of the plant's future operations on the surrounding environment, TPCA's production plant was granted an Integrated Pollution Prevention And Control (IPPC) integral permit. The permit defines the rules that the operation has to follow and sets the limits for emission.

The pilot run permit awarded to TPCA in December 2004 declares that all TPCA plant activities comply with the current laws and regulations. Furthermore, some of the limits for TPCA are much lower than those enforced by current Czech or EU legislation. A similarly lower limit is also set for noise and other factors affecting the environment.

Issue of the integral permit is only required by law for the paint shop.

Nevertheless, TPCA has requested an integral permit for the whole plant operation and was already awarded the permit in November 2004.

One of the conditions for an IPPC permit is the use of best available techniques (BAT). This means that TPCA uses and operates the most efficient and advanced production technology thus protecting the environment. One such technology for example, is the use of water-borne paint for electrically applying paint to cars. TPCA's BAT complies with EU methodology.

With regards protection of the environment, the inspection focused primarily on emissions, waste water, waste in general, noise, energy consumption and raw materials:

Waste

TPCA undertakes that no waste will be sent directly to a dump site. Waste will be carefully sorted and then recycled or burned.

Energy, raw materials

TPCA's operation is one of most efficient in the EU in terms of electrical power, gas and water consumption. Nonetheless, ongoing efforts are made to bring down energy requirements even further.

Noise

TPCA meets one of the lowest limits for noise from stationary sources in Europe and has also started to self-monitor the situation. Results have shown that TPCA is able to go far below the required day and night limits, with a wide margin.

Emissions

Production of VOC (volatile organic contents) in the plant is being reduced. At TPCA, for example, a system for recycling paint thinners has been installed; the paint shop is also equipped with patent-protected painting technology and a thermal burning device, which handles all exhaust gases from the baking furnaces.

TPCA has set itself the short-term target of achieving an ISO 14001 certificate, meeting the standards for a management system for the protection of the environment (EMS). TPCA aims to obtain certification of its EMS within 12 months of the start of production, i.e. before February 2006.

Social responsibility

TPCA's mission is to be a good cohabitant of all the residents of the region and by applying a pro-active approach, to contribute to the sustainable growth of the Kolín region.

TPCA is committed to dialogue with the residents, local government and non-profit organizations and focuses in-depth on all issues raised by these partners.

To this end, TPCA has recently made two important decisions:

- TPCA's plant was granted exclusion by the Czech government, from the total ban on trucks on Sundays and the partial ban on Saturdays. Discussions with local residents and primarily representatives of the local government confirmed that trucks would present a problem for the local environment without a very positive economic impact for TPCA, the suppliers or the region. TPCA has therefore decided to build an additional logistics area to provide for plant deliveries at weekends and has been then able to relinquish this exclusion.
- Residents from the neighbouring village of Ovčáry noticed the noise caused by the plant's ventilation units. Noise measurements were carried out and reveal that TPCA is within the legal limits, and in fact its noise levels are far below these

limits. Nevertheless, TPCA decided to take additional technical measures to lower the noise level even more.

In order to support the region efficiently, TPCA has launched “Partnership for Kolin region”, a grant program for the region of Kolín.

Through this program, municipalities, civil associations as well as non-government organizations can apply for grants for their projects for the development and improvement of the quality of life in the region.

In 2005, TPCA will support 14 projects, including a summer camp for children from underprivileged families, constructing part of a bicycle route, creating new green areas in the village of Velký Osek, reconstruction of a playground in Kolín, etc.

Since its inception, TPCA has provided € 0.87 million in support for the region.