




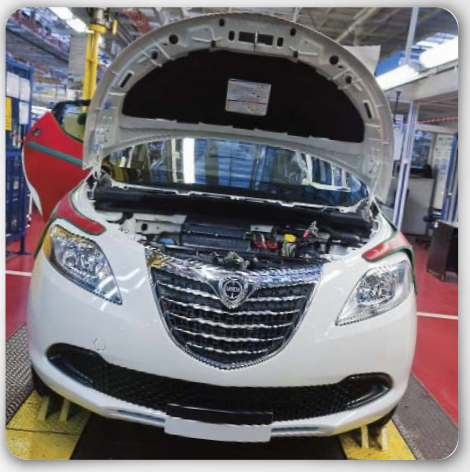

WORLD CLASS MANUFACTURING

FCA Poland Tychy

FCA POLAND – TYCHY PLANT


FCA Poland
Tychy

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Tychy Plant Highlights

The Tychy Plant is a true industrial community which plays host to some 70 businesses providing services for the automotive industry

Introduction

Erected between 1972 and 1975, the Tychy Plant sits on an area of more than 2.4 million m², with production halls and service buildings taking up 0.5 million m². The FCA Poland plant in Tychy ranks among the largest manufacturing factories in Europe. Coils of sheet metal can be transformed into a finished car in under 16 technological hours. One car rolls off the assembly line practically every 44 seconds.

The Tychy Plant turned out 313,933 vehicles in 2014, including 189,264 Fiat 500 cars, 9,023 Abarth 500 cars, and 61,144 Lancia Ypsilon cars.

Apart from the FCA models, 54,502 Ford Ka cars left the assembly line.

The scale of the production output makes the plant an unquestioned leader among automakers in Poland. The plant is also the largest FCA plant in Europe, as well as the largest regional employer with 3,400 workers. Moreover, the plant premises play host to some 70 businesses which provide services to FCA Poland and thus make the Tychy Plant a true industrial community.

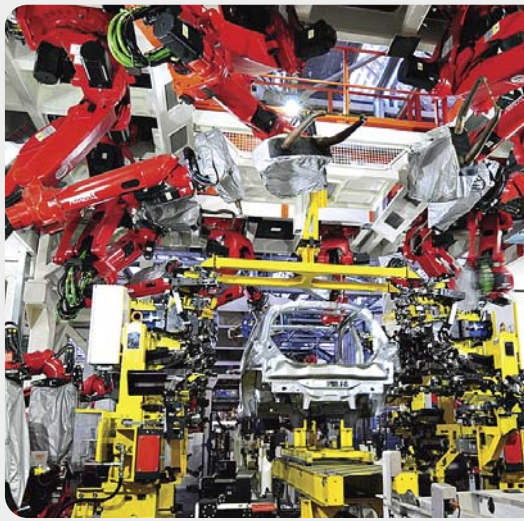
Welding Shop

The most robotized part of the plant, the Welding Shop, operates as many as 921 robots on a 59 thousand m^2 area. 99.5% of welding and pressure welding operations have been robotized, producing huge benefits, such as high quality, lower costs, improved repeatability, and a higher production rate. It is here that car bodies are made from stamped parts supplied by the stamping shop; subsequently, other departments add their own specific components, namely: the Paint Shop applies protective coats and color and Assembly contributes sub-assemblies for a complete vehicle. Here the chassis first meets the sides to make a complete body. The so-called 'open gate' station takes care of alignment before the body is welded together. The next step represents completion, i.e. more sheet metal is added to the body already reinforced with additional welds, depending on the version. Then the vehicle moves on to the finishing line to be fitted with movable parts: covers, doors, and fenders. When the body has passed the final stage, it goes on to the Paint Shop. The entire welding process takes slightly longer than 2 hours.

The Versaroll line determined the future development of the Welding Shop. Unlike a traditional line with work tables and work performed on the floor, the Versaroll is suspended from a special structure which provides sufficient space to perform preparatory work and retooling outside the line.

The Tychy Welding Shop comprises two departments,

The automated Versaroll line for welding the car sides provides a good example of how the Tychy Welding Shop has optimized their production process: as many as four different models in any configuration may be manufactured on the line without any need to stop it



* The stamping department opened as soon as the Tychy plant was completed. Operations were subsequently contracted out to Delfo Polska in 1998, which has been supplying sheet metal and die stamped parts for FCA Poland production ever since

A and B: one is used for manufacturing Lancia Ypsilon cars and the other for Fiat 500, Fiat 500 Cabrio, Abarth 500, and Ford Ka cars.

Paint Shop

One of the most modern yet fully environmentally friendly department of this type in Europe, the Paint Shop takes up 45 thousand m^2. The high degree of automation (close to 90%) guarantees sustained high quality standards.

Car bodies arriving here from the Welding Shop must undergo preparatory de-greasing before they can be painted. Then, on the phosphatizing and e-coating line, the body is submerged in tubs and the first anti-corrosive coating is applied, followed by the sealing of all the welds and sheet metal joins, which prevents leaking and blowthrough, and provides soundproofing. In the next stage, robots apply a protective coating called mastic that will protect the chassis from damage caused by rocks hitting the bottom. Once the body has been properly prepped, a primer is applied followed by a base coat which gives the body its color, and finally a clear finish coat to make the paint glossy and shiny on one hand and to give additional protection on the other. Application of the base and clear coats is preceded by compressed air blasting and de-dusting of the car body surface using EMU, which features ostrich feathers and an extractor. The Paint Shop consists of two parts, A and B, with the former built in 1991. This is where Fiat 500 and Lancia Ypsilon cars are painted in 25 different colors, 25 bi-color combinations, and two metallic paints. Solvent based paints are used for the primer and base coats. Paint Shop A capacity amounts to 1,400 bodies per 24 hours.

The new Paint Shop B was added in 2007. Here, Fiat 500 and Ford Ka cars can get 16 different shades of water paints (11 bi-color) at a rate of 920 bodies per 24 hours.

State-of-the-art technologies make it possible to apply paints of various colors on the same line, which means that every car body on the line may be painted a different color. The Paint Shop production cycle lasts 10 hours.

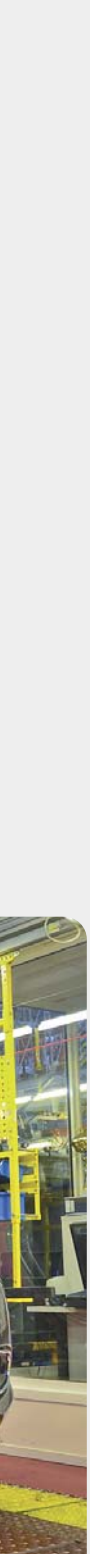
When it comes to protection of the environment, the Paint Shop is an unquestioned leader in the FCA Group: it uses the least amount of electric energy to manufacture one car and the savings are further accompanied by the lowest emissions of harmful substances

Assembly

The shop occupies an area of 81.5 thousand m² and comprises two production lines, one of which makes Fiat 500 and Lancia Ypsilon cars. Both models are available in nearly 140 versions and 442 trims. The other line is used to make Fiat 500, Fiat 500 Abarth, and Ford Ka cars, all available in 85 versions and more than 450 trims. Considering the wide range of available engines and transmissions, practically every car can be unique.

The lines are divided into technological teams. There are two separate door assembly lines where the body assembly team assembles, among others, fuel lines, brakes, electrical harnesses, roof lining, carpeting, dashboard, windows, and seat belts. The chassis assembly team installs the powertrain, front and rear suspension, the front-end (header panel with the radiator, A/C compressor, fan, and the horn), bumpers, and wheels. Another team deals with the final assembly of the battery, air filter, windshield wipers, seats, and the complete doors. They also inspect the electrical systems for errors. Before it reaches the dealer, the complete car is subjected to very detailed and strict trials and testing in order to assure the highest quality. Currently, 1,200 cars leave the production lines every two shifts. The assembly cycle takes 4 hours.

Over the last few years, the assembly line experienced a huge technological leap forward, optimizing the production process and reorganizing work stations thanks to the implementation of World Class Manufacturing



History of the Plant

Production of the Fiat 126p car, for which the Tychy Plant was erected, continued for 27 years

The Early Years

The cornerstone for the future assembly plant in Tychy was laid over 40 years ago. Modeled on the Fiat plant in Cassino, Italy, the project was completed in 1972-1975.

The former Plant No 2 in Tychy, today simply called the Tychy Plant, became a part of FSM, a state-owned multi-plant industrial complex in Bielsko-Biala designed to make the 126p model under a Fiat license. The first cars rolled off the Tychy assembly line on September 18, 1975, not quite two years following the model launch in Plant No 1 in Bielsko-Biala. Production of the Fiat 126p continued in Tychy for 16 years until, in 1991, the entire production was moved to Bielsko-Biala, making room the Fiat Cinquecento model. No one likely even suspected at the time that the production of Fiat 126p would go on for another 27 years. Altogether, 3,318,673 units left the assembly lines, of which the Tychy plant accounted for 2,166,349 cars. When the last Fiat 126p left the plant in Bielsko-Biala on September 22, 2000, Fiat Auto Poland resolved to continue assembling cars solely in Tychy: it did not make much sense to operate an assembly plant whose output had been seriously downgraded and, in any case, all the bodies had to be taken to Tychy for painting. Shortly thereafter, Fiat also moved to Tychy the production of Fiat Siena, Fiat Uno (manufactured until 2002), and Fiat Palio Weekend (manufactured until 2004), while the plant in Bielsko-Biala henceforth focused on mechanical aspects. Today, it is one of Fiat's strategic industrial centers making 1.3 Multijet compression ignition engines and 0.9 TwinAir gasoline engines.

Let us go back, however, to the early 70's. In order to cover the costs of a new model launch, the annual 126p production of 150 thousand units originally planned for both Tychy and Bielsko-Biala was eventually upgraded to 200 thousand cars. The location chosen for the new plant was to allow for doubling the production by expanding and constructing new production halls in the future. Tychy fit the bill perfectly because they offered large, flat, and regularly shaped areas of land, with easy access by road and rail plus options to hook up to various power sources. It is for all those reasons that Tychy was chosen – over, say, Bielsko-Biala or any other town in Upper Silesia. Out of

the total of 1.6 million m², 220,000 m² of the property was soon taken up by modern industrial halls and service buildings. In its twenty-one year long history, however, FSM never doubled the production, far-sighted as the idea was at the time. It was only in the 90's, especially in the first decade of the new century, that Fiat Auto Poland saw any significant growth over a few stages of the plant expansion. The year 2009 proved to be record-setting when the Tychy production reached 606 thousand cars. The overall plant premises grew to their present-day size, i.e. 2.3 million m², of which 500 thousand m² now include enclosed areas, such as production halls and other service buildings.

Construction of the new Tychy plant began on January 1, 1972, as soon as the Small Engine Plant (FSM) had been set up and Katowickie Przedsiębiorstwo Budownictwa Przemysłowego (Katowice Industrial Construction Enterprise) was appointed general contractor. The plan called for an assembly plant with a complete production cycle that would include a stamping department, welding shop, paint shop and assembly. The latest technologies of the day, never before used in Poland and mostly imported from Italy or Germany, were applied to build and equip the production halls.

The welding shop, for instance, was equipped with a semi-automatic line for welding the floors, which made it possible to automate the welding of the car floor, sides and the roof within the body structure at the rate of one hundred welds per minute. The line represented a huge technological leap compared to, say, manual operations still used to make the Syrena car in Bielsko-Biala. Similarly, other departments were also equipped with the latest technology: the Paint Shop, which had to meet the most stringent quality and corrosion protection requirements, featured spray phosphatizing equipment,

Construction of the Tychy Plant started on January 1, 1972 and soon new industrial halls and service buildings began rising over an area of 220,000 m²

FSM production departments got the latest technologies at that time, mostly imported either from Italy or Germany

submersion electrophoretic priming and electrostatic coating with base and finish paints.

The Fiat 126p Era

Production using advanced technology represented just one of the basic conditions underlying the future license agreement that would include funds for the investment project, assignment of fifty thousand of finished cars to Fiat (Fiat intended to sell them in West European markets using its own distribution network), 820 thousand engines (all made in Bielsko-Biala), and a number of various spare parts.

The production plan that called for 200 thousand Fiat 126p cars to be manufactured both at the Bielsko-Biala and Tychy plants was reached in 1979 and maintained – with minor variations – for another ten years. The year 1980 set a record when 182 thousand cars left the Tychy plant. Beginning that year, higher export volume drove up the plant output as Fiat had stopped making the "126" in Italy and was gearing to start selling the model manufactured in Poland under its own brand, using its own sales organization in Europe.

The decision meant special recognition for the FSM plant, a distinction never granted to any licensed manufacturer before. For the Italians, the decision amounted to a litmus test of sorts prior to committing themselves to any future investment projects in Poland. Several years later, buttressed by successful experiences, Fiat resolved to start the production of an entirely new, strategically important Fiat model at the Tychy plant, which was to become the sole manufacturer of the Cinquecento slated for sale in all European markets.

Having peaked in 1989 at 207 thousand Fiat 126p cars (in Tychy and Bielsko), the production gradually began dropping in subsequent years: down to 190 thousand in 1990 and 124 thousand in 1991. Following the move to Bielsko-Biala, the production reached only 61 thousand in 1992. In the meantime, Tychy launched the Cinquecento model in June of 1991, making 6 thousand cars by the end of that year and another 83 thousand in 1992.

Cinquecento Transforms the Tychy Plant

In 1987, the Polish government signed a license agreement with Fiat to make the Fiat Cinquecento at the Tychy plant. The agreement provided for the upgrade and expansion of the plant, which would allow for 240 thousand cars being made per year.

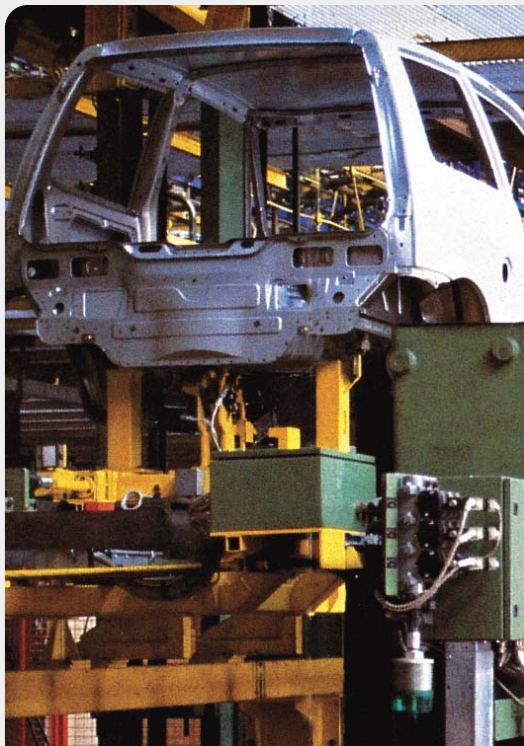
This spelled the end of the so-called "Maluch" car (called "The Little One" because of its size) and the beginning of a new chapter in the Tychy plant history. In order to start making the Cinquecento, the Tychy plant had to change, as well as welcome the latest technology, which would be of key importance to its future growth. Every department underwent restructuring and adaptation needed to meet the requirements of the new model. The stamping department was equipped with modern automated machinery, while in the welding shop and assembly area 90 Comau robots plus suspended trolleys for transporting sub-assemblies were installed. In April 1992, a new paint

line was completed – one of the latest and most environmentally friendly in Europe. The plant introduced an automated warehouse management program and vehicle assembly took place along the lines to which sub-assemblies staged earlier in other areas and subject to strict technical and quality control were gradually supplied.

It was not just a major technological challenge; the company organization and management also evolved, following a revolutionary change of its operations principle in the latter half of the 90's, when the latest international quality standards were adopted and the employees taught a new approach to their job based on production workers' self-certification and the focus on customer-oriented top quality. The new model incorporated the Japanese concept of an "integrated factory" (Lean Production) and became initially known at the plant as the "Efficient Factory" model. Gradual implementation of additional world standards, such as Total Productive Maintenance (TMP), allowed the Tychy plant to become ISO 9001 certified in 1996, making Fiat Auto Poland the first Fiat Group company to win such a prestigious international distinction in recognition of its high quality production.

Cinquecento transforms the Tychy Plant. A license agreement signed to manufacture a Fiat model in Tychy

Meantime, the premises of the plant expanded to 1.9 million m^2, which included 380 thousand m^2 of covered space, and the Tychy production kept pace, growing from 192 thousand cars in 1993 to 211 thousand in 1996, and 253 thousand in 1998. In 1999, once the SKD system for assembling major Fiat models earmarked for the Polish market was installed, the output reached 271,920 units, marking the beginning of the so-called Seicento era. It would be another seven years before it passed the 300 thousand



milestone, with both the Fiat Seicento and Panda models being manufactured.

The Cinquecento production continued until 1998, reaching 1,164,525 cars altogether. In the meantime, the Tychy Plant started the production of the Fiat Seicento which – regardless of other models being launched, i.e. Panda and 500 – would continue until May, 2010 (using the name "600" beginning in 2005). All in all, 1,328,973 units were made.

The 870 Million Euro Technological Leap

Following the record high of 1999, production at the Tychy Plant, essentially based on the Seicento model, fell in 2002 to below 159 thousand cars. Without a new model or new investment projects and without another quality leap or new technology, the plant would not be able to survive. The Fiat Group faced difficult times when Giovanni Agnelli passed away in early 2003, soon to be followed the next year by his brother Umberto, a period of major financial and economic problems. Nevertheless, the Polish employees of Fiat did not lose hope; they focused on continuous improvement and waited for production revival. Despite a market downturn, the plant worked on improving its quality management system, becoming eventually one of the most respected and admired organizations both of the Fiat Group and in Europe. Another ISO certificate of integrated quality, environmental, health and occupational safety system, obtained in 2002 and preceded by the first one of 1996, best illustrates the progress the plant made. This, however, was but a foretaste of its future quality successes which would continue after the year 2000 for another decade, until today, when in early December, 2013, the plant won the Gold Level World Class Manufacturing medal.

It was precisely for the oft reconfirmed values and characteristics of the Tychy Plant, its high quality of production, and its cost awareness, that the Fiat management in Turin decided yet again – just as in the case of the Cinquecento – to assign to Tychy the production of a new strategic segment A model. That model was the new Panda, which quickly gained great popularity with customers.

Only the Tychy Plant managed to turn out two "cars of the year" simultaneously: Fiat Panda and Fiat 500.
In 2009, the plant reached a record production making more than 605 thousand cars

The scale of investment carried out in Tychy for the first Panda launch in 2003 and later, in 2007, for that of the Fiat 500 was overwhelming: 870 million euros in all. Furthermore, there were capital outlays in Bielsko-Biala of 400 million euros to launch the production of the Multijet 1.3 turbo diesel engines. The Panda with the new engine had now become a 100 percent Polish product. No other car maker came close to the scope of Fiat's investment in this country. With 400 robots in use, 304 of which worked on the Panda welding line, the Tychy Plant had thus moved to the forefront of Europe's technologically advanced factories.

Plans to bring production of additional new models and to increase production capacities resulted in investment projects going on for a few more years. Plant expansion and modernization continued throughout 2007 and 2008 and covered all the industrial areas, with the number of robots reaching 950. 7,200 m² of new space with robotized lines was added to the welding shop and every welding station was equipped with optoelectronic control devices that performed non-contact measurements of the entire car body using an optical beam.

The assembly department received a new production hall of 30 thousand m² where two new lines were installed. The new Paint Shop capable of handling over 720 car bodies per day was later upgraded to handle 920. The new shop joined an existing paint shop, first opened in 1992, which was also expanded. The company thus boosted its daily production capacity to 2,120 cars, only to grow it further in the future.

At present, the Tychy Plant spreads over an area of 2.4 million m², of which roughly 500 thousand m² accounts for production halls and service buildings. Twenty years after purchasing the FSM plant, Fiat doubled the size of the plant and tripled its capacity, exceeding even the boldest projections of the engineers who had designed it in the early 70's.

One Plant, Two Cars of the Year

The investment program proved to be a true watershed for the Tychy Plant. In a short period of time, the plant boasted two models that had won Car of the Year awards. No other plant in Europe had ever turned out two "cars of the year" simultaneously, and the production literally took off.

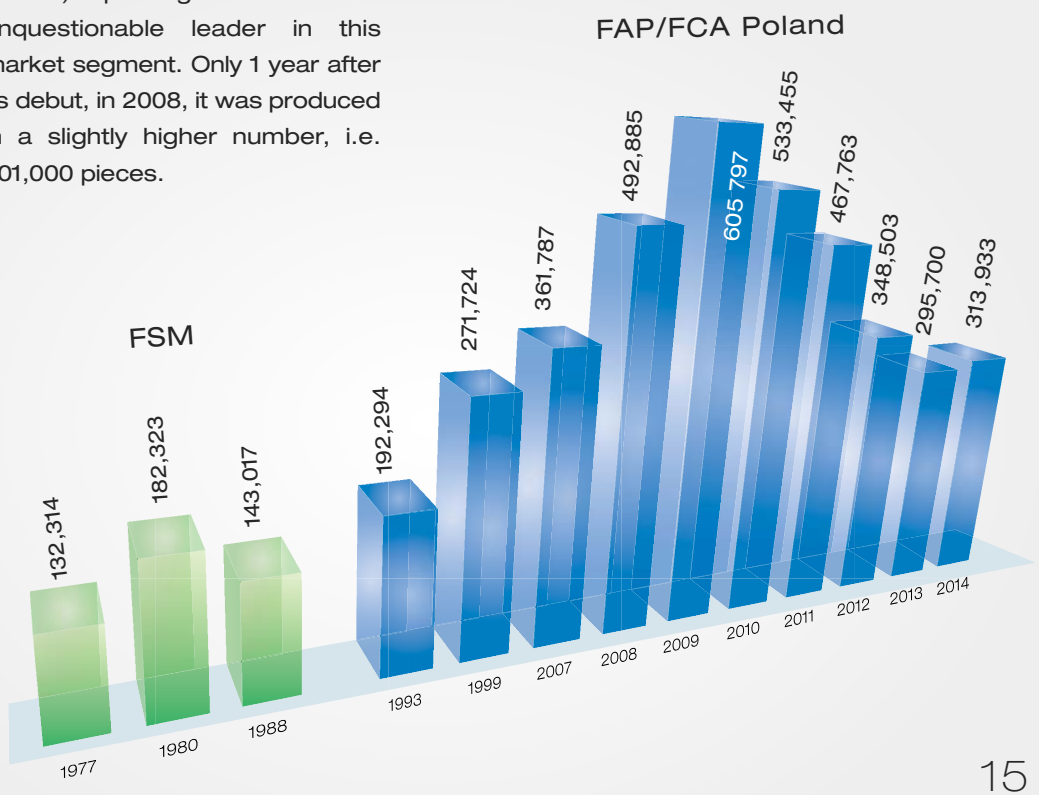
In 2007, the first year the Fiat 500 was made, 361,787 cars rolled off the lines, with Pandas accounting for 261 thousand. Data for the following year, however, appears simply incredible: high demand in Europe, spurred on by environmental subsidies offered by governments and sizable investment growth, pushed the production first to 492,885 cars (2008) and then, the following year, to a record number of 605,797 cars, of which Pandas accounted for 298 thousand and Fiat 500 (together with the Abarth version) for 184 thousand.

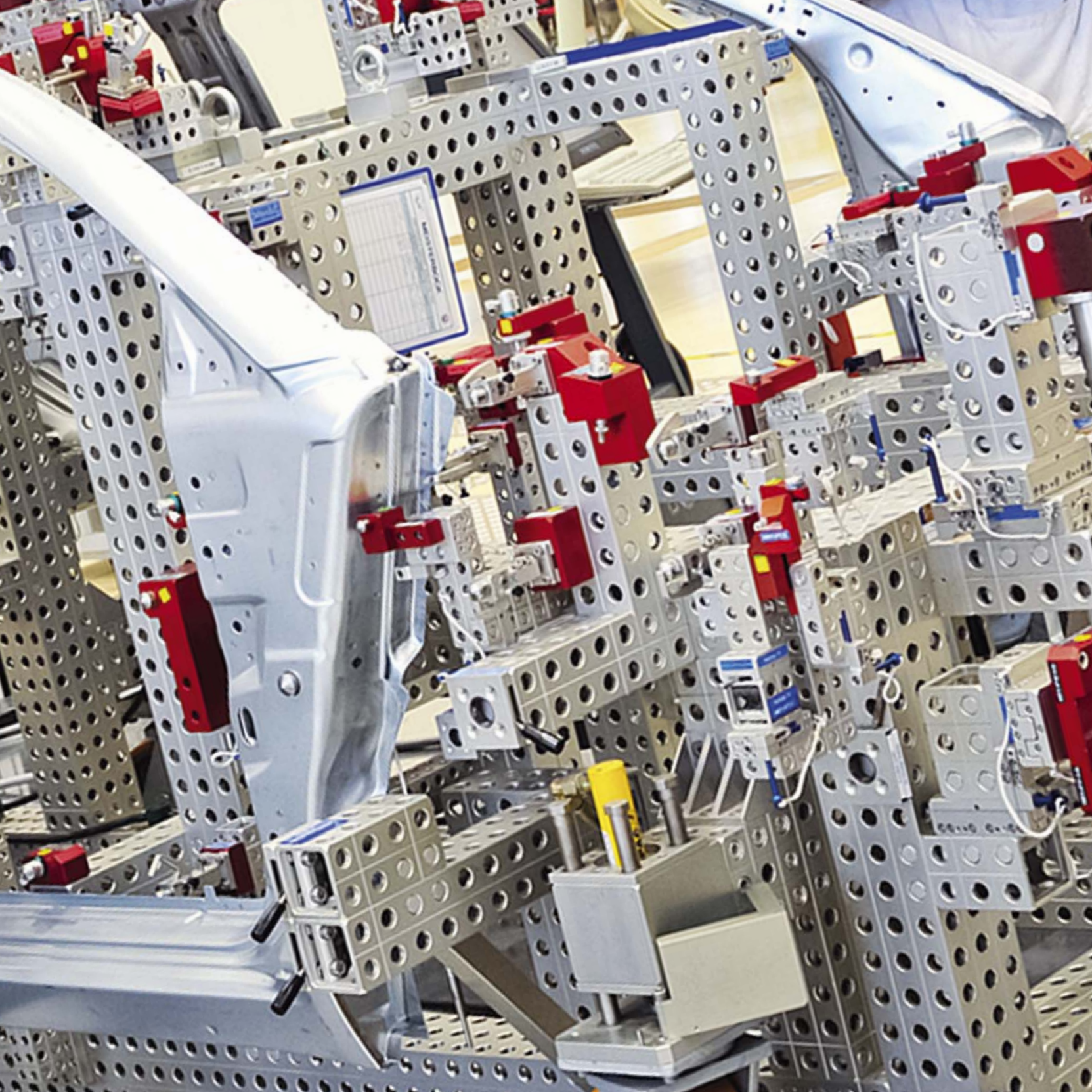
The year 2009 saw a new car leaving the lines in Tychy every 35 seconds, with daily production output reaching a record level of 2,320 units. More than half of all the cars manufactured by Fiat in Europe that year were cars made in Tychy.

At the end of 2010, the plant was also entrusted with the production of the Lancia Ypsilon, but the worldwide economic downturn caused the European demand to shrink visibly compared to the previous year boom. This adversely impacted the size of the Tychy Plant production to such a degree that in 2013, following the inevitable elimination of one shift, it dropped to 295,700 cars. The year 2013 also proved remarkable by the absence of the Panda whose production came to an end after a ten-year successful run which had produced a total of 2,168,491 cars. The Tychy Plant responded to the crisis in its traditional way – with specific action. As a result, on December 6, 2013, the plant won the Gold Level World Class Manufacturing medal.

Having decreased for 4 years, in 2014 production in Tychy is rising again (6%, 314,000 cars). It is the result of continuous demand for 500 which – despite that it has been offered for 8 years – was bought in Europe and all over the world by more than 198,000 customers (both as Fiat and as Abarth) proving to be the unquestionable leader in this market segment. Only 1 year after its debut, in 2008, it was produced in a slightly higher number, i.e. 201,000 pieces.

Tychy Plant production (selected years)





The Tychy quality. From ISO 9001 to Gold Level WCM

Focus on Quality

The automobile is one of the most technologically advanced products commonly used that can consist of upward of 5 thousand parts, each with its own design, research, technical and production process, all of which guarantee top quality. The cycle is underpinned by the specialized knowledge the Tychy Plant steadily encourages its employees to gain. The plant also aims to mold the employees' outlook as well as a special emotional approach to new problems; it emphasizes teamwork and partnership among all of the production process stakeholders; and it stresses another important aspect - the focus on the customer, both final and internal. Standardization and self-certification play a key role in assuring top quality. Standardization means creating optimal conditions for individual operations, which in turn results in quality product as well as strict enforcement of best practices, whereas self-certification means employees assume responsibility for the work they perform.

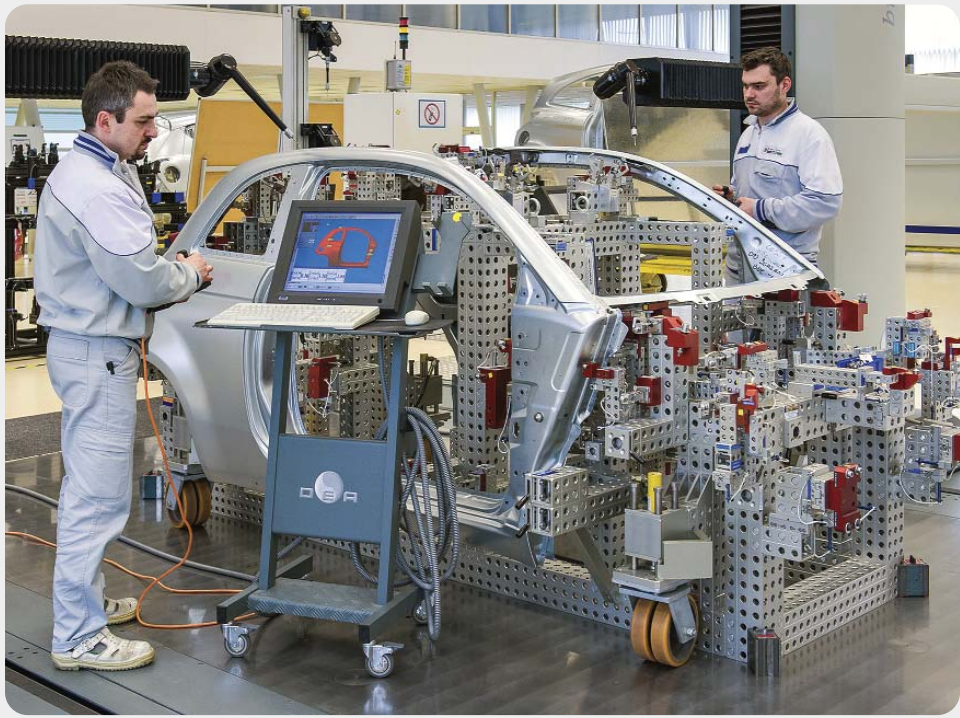
Self-certification has been implemented and improved in the Tychy Plant for many years. So much so, in fact, that it has now become an inseparable component of the company technical culture, and mutual trust and appreciation. The plant also supports auto activation, or the employee's prompt response to problems and corrective action. The so-called Andon notification system managed online has been incorporated into a special program: as soon as a line operator detects a problem, he turns on a red light; the team leader, who sets up the work team and launches the problem solving procedure, then proceeds to rectify the problem. All operations are tracked online and the data is made available to individuals responsible for quality in real time. The problem as well as its possible solutions are then analyzed in special meetings called “One Point Lesson”.

One cannot turn out top quality product without the cooperation of one's parts and sub-assembly suppliers. For many years now, all

The employee promptly responds to any problems, and everything is recorded on-line

our suppliers have followed the auto certification system. That means they deliver products that do not require prior inspection to the production lines. It is a question of trust and the result of the FCA Poland-managed supplier development and shared quality policy.

The Tychy Plant is well familiar with customer expectations. Its IT system allows for prompt response to any changes in market demand. Customer questionnaires conducted by third parties represent an important tool of the system since their results facilitate introduction of any necessary modifications at the car design phase as well as any improvements to the existing models. In addition, the plant utilizes other types of product and process quality control instruments and, finally, advanced diagnostic methods and continuous improvement. The questionnaires include so-called customer perspective tests, including the CPA (Customer Product Audit) indicator to evaluate the car's visual appeal as well as its static and dynamic functionality. The latter cover statistical methods of process control – SPC (Statistical Process Control), Problem Solving, Six Sigma, and numerous others.



Lean Production and ISO Certificates

Striving to maintain top quality at all times is a never-ending challenge. Abandoning it would mean a step backwards accompanied by quality deterioration. In the 90's, after Fiat took over, every fifth Cinquecento leaving the plant required some minor adjustment once it rolled off the assembly line and before it made its way to a dealer showroom. The defects caused the plant a lot of headaches, both logistical and organizational, that generated additional costs and waste of time and money.

Car performance testing carried out from the customer's point of view allows for strict product quality and process control and thus makes it possible to introduce any necessary changes already at the car design stage and to further improve the existing models

That was the story in the first few years after the FSM buyout: years of intensive training (83 thousand training hours for 1993-1996), but primarily years of reorganization, since top quality will remain elusive without employee commitment. Quality is something inside us; something that is born from our way of thinking, our attitude toward work, from thousands of decisions we take and our everyday conduct. The plant must develop its own corporate culture, spread it widely among the staff, and create a specific "technical environment" conducive to continuous improvement, evolution, and willingness to meet new challenges.

At the time, no one in Europe had yet come up with standard quality management models that would resemble contemporary solutions. Motivated by surprisingly good results obtained in the countries of the Far East, as well as stiff market competition, European manufacturers had been looking for methods that could compete with the Japanese factory model. In those days, ISO 9001 (International Standard Organization) quality standards had been gaining popular recognition in Europe and had succeeded in defining the groundwork of modern quality: customer oriented approach, employee commitment, leadership, teamwork, process approach, result measurability, and continuous improvement. For the Polish factory which had just emerged after trying times from a backward system that promoted quantity over quality it was an ideal opportunity to show its potential and willingness to work as the youngest member of the Fiat Group family. Since 1995, the plant had been focusing on implementing a new methodology called "Efficient Factory" or "Lean Production" (the term "efficient" became more popular in Poland as better fitting the local reality than the literal translation of the English term "lean"), developed for an integrated model of an Italian factory and implemented by Fiat in all its plants. The idea was to 'flatten' the organizational structure of the company and make it more flexible so that it can respond more quickly to signals from the market and the outside environment. Doing this called for improving employee knowledge and competencies, enabling them to resolve problems right at the point of origin; for stimulating initiative, building teamwork, and systems thinking. The traditional division – between those who think and those who execute instructions, or those who do the job and those who inspect it – had to be abandoned. What was needed was a transition to a work system based on self-certification of the line workers and preventive maintenance of machinery and systems (Total Productive Maintenance). As a result, in September of 1996, Fiat Auto Poland (actually FCA Poland) obtained an ISO 9001 Quality Assurance Certificate awarded by TÜV CERT, RWTÜV division, Polish Center for Testing and Certification (PCBC) and IQ Net. For the first time in Europe, RWTÜV certified the entire automotive plant, including the integrated system – from design to after sales service. Fiat Auto Poland became the first company in the Fiat Group to win the ISO certificate.

September 5, 1996 Fiat Auto Poland receives an ISO 9001 Certificate. In the picture, Diego Avesani, FAP General Director at the time, center

Over the course of years, the company continuously displayed its commitment to quality by updating and expanding the scope of certain earlier certificates. Apart from having its 1999 certificate extended, the Tychy Plant won an ISO 4001 environmental management system certificate in 2001. In early 2002, it obtained an ISO

9001:2000 certificate introducing the so-called "process approach to company management". As the most momentous event of September 2002, the company obtained an integrated management system certificate proving it had complied with the quality management (ISO 9001:2000), environmental management (ISO 14001), and occupational safety (PN-N-18001) requirements.

Quality Awards in Poland and Europe

It did not take long for the results to become evident. The plant was steadily improving all the quality parameters, both internal and external. When in 2003 Panda first arrived on the market, the media had already been reporting the "Japanese quality" offered by the plant in Tychy. By then, 94 percent of all the cars off the Tychy assembly line could go directly to dealer showrooms without any additional intervention. Only one Panda out of seventeen required some very minor correction, usually of a slight defect occurring at the end of the line. Exactly as in a Japanese factory.

Yet the Tychy Plant did not rest on its laurels because it viewed quality improvement as an ongoing process. Rather than sit back and relax, the management decided to participate in some very prestigious quality competitions both in Poland and Europe, beginning with the Polish Quality Award (PNJ) in the "Large Manufacturing Organizations" category which the plant won on November 11, 2004. The distinction is awarded annually by the Polish Center for Testing and Certification, National Chamber

The extreme attention paid to quality that characterized the production beginning with the mid-90's paid off: in 2004, the plant won the Polish Quality Award medal.
The competition recognized the plant for implementing a continuous improvement policy, state-of-the-art quality assurance methodology, and promotion of quality-focused approach among the employees.
On the left: Zdzisław Arlet, the then Plant Director, and his staff

of Commerce, and the Polish Forum ISO 9000 Club. The competition promotes total quality management and rewards leading Polish companies for their excellence. The PNJ Committee looks for compliance with certain indicators, such as implementation of Total Quality Management, continuous management improvement, application of the latest quality assurance systems, or promoting quality-enhancing attitudes among the staff.

The success motivated the company to aspire to certain European models. Soon thereafter, the Tychy Plant implemented the EFQM Management Model (European Foundation for Quality Management) and in a competition which evaluated its implementation (14th European Quality Award), Fiat Auto Poland was awarded an "EFQM Recognized for Excellence 2005" diploma. In 2006, the Tychy Plant joined a select group of EEA (EFQM Excellence Award) finalists, considered a "premium league" of the best managed organizations. In the meantime, the Tychy Plant successfully moved along its development path initiated under the International Standard Organization in 1996. In 2008, PCBC and TÜV NORD auditors awarded the plant a Quality Management System Certificate of Compliance according to PN-EN ISO 9001:2009 standard. Then, in 2012, the Tychy Plant was the first Fiat Group company to implement an energy management system according to ISO 50001 standard, which calls for reduction of costs and greenhouse gas emissions, as well as more efficient use of energy.

WCM Brings about a Breakthrough

With a view to standardize procedures in all the Group companies and to give rise to a healthy intra-Group competition, Fiat management resolved to implement World Class Manufacturing in 2006, or an integrated business management methodology based on the best world standards of occupational safety, environmental protection, maintenance, logistics, and quality. World Class Manufacturing encompasses traditional management models already well-known to the company, i.e. Total Quality Control, Total Productive Maintenance, Total Industrial Engineering, Just-in-Time, and Lean Manufacturing. Furthermore, by integrating them all into one model, WCM adds an economic aspect to measure and evaluate every problem, regardless of its nature.

6 grudnia 2013 r. zdobycie przez Zakład Tychy Gold WCM. Poniżej: jedna z prezentacji podczas audytu

Consisting of ten managerial and ten technical pillars, the system takes the plant through three levels (Bronze, Silver, Gold) before the plant can reach the highest World Class Level. WCM Association experts perform annual external audits in order to verify continuous improvement of production performance and gradual waste reduction while maintaining top product quality and maximum flexibility in responding to customer expectations. The goal may be attained only through employee involvement and motivation; consequently, each team takes action aimed at their own improvement projects ("kaizen" in Japanese): zero defects, zero breakdowns, zero losses, zero warehouse surplus.

One of Fiat's major WCM aspects involves arranging for all its plants worldwide to communicate using consistent technical language in order to facilitate dissemination of the best practices implemented in individual plants and thus to use a uniform result evaluation methodology. The latter plays a key role in making the right decisions on where to place production of new models.

Gold Level World Class Manufacturing

In 2007, less than a year after implementing the new methodology, and yet again as the first organization within the Fiat Group to do so, the Tychy Plant won the Bronze Level WCM. That same year, the key one for launching the Fiat 500 production, the plant showed it was ready to further improve the already high quality and manufacturing indicators achieved by the Panda model. This was supported by the FTQ (First Time Quality) indicator which showed what percentage of cars would go from the assembly line directly to showrooms, once the process and all the inspection operations had been completed. By now, only two out of every hundred cars required minor end-of-the-line corrections while 98

percent were being promptly released as "OK".

It was an exceptional result when we consider that the quality leap took place on the heels of a difficult and profound transformation accompanied by a substantial production growth which necessitated significant investment and massive new jobs. Let us not forget that new

employees had to be trained thoroughly while the production capacity grew rapidly in a few years from 1,250 cars per day in 2006 to 2,320 per day in 2009, a record year. Whereas earlier one new Panda rolled off the production line every 60 seconds, in 2009 the time interval in between was shortened to 35 seconds. The result proves the master performance of the Tychy Plant, one that would have been impossible without consistent application of the WCM.

WCM audits take place every year and the quality improvement is reflected by the ever higher scores. Tychy won the Silver Medal in 2009 and the Gold Medal on December 6, 2013.

WORLD CLASS MANUFACTURING

Apart from accolades and testimonials, awards and distinctions, the most important aspect of the WCM appears to be the motivational effect and financial results. The employees realize there is no time to lose: the plant is regularly monitored and the bar keeps rising.

The struggle for the best quality never ceases, even after achieving the WCM maximum score of 100 points because – truly – the top score represents but a conventional goal.

Let us remember the not-so-distant past – the technological leap which took place when the Cinquecento model was first made here, followed by Panda and later by Fiat 500 and Lancia Ypsilon cars. The great improvement, or "kairyo" in Japanese, realized thanks to major technological innovations, is not enough to assure future top quality. Full commitment of the crew and small steps forward supported by thousands of "kaizens" implemented by the employees day after day play a crucial role. And they know this in Tychy well, because their ranking in the automotive world depends on it.

Quality Time Line

1995	Lean Production implemented
1996	Total Productive Maintenance implemented
1996	ISO 9001 Certificate
1997	Total Quality Management system implemented
2001	ISO 14001Certificate (environmental management)
2001	ISO 9001:2000 Certificate
2002	ISO Integrated Total Quality Management ISO 9001:2000), Environmental Protection (ISO 14001) and Occupational Safety Certificates (PN N 18001)
2004	Polish Quality Award (PNJ)
2005	"EFQM Recognized for Excellence 2005" diploma in the EFQM European Quality Award competition (European Foundation for Quality Management)
2006	EFQM European Excellence Award EEA – finalist (EFQM Excellence Award)
2006	World Class Manufacturing (WCM) implemented
2007	Bronze Level WCM
2008	PN-EN ISO 9001:2009 Certificate
2009	Silver Level WCM
2012	ISO 50001 Certificate (energy management)
2013	Gold Level WCM
2014	Another WCM audit that confirmed the Gold Level with 2 another points

IV Attachments

Tychy Plant Time Line

1971 Agreement to manufacture the Fiat 126p in FSM signed (October 29)

1972 Construction started on a new plant in Tychy

1973 First Fiat 126p cars leave the assembly line in Bielsko-Biala

1975 First Fiat 126p cars leave the assembly line in Tychy

1980 Fiat 126p production at the Tychy Plant reaches 182 thousand, setting a record for the 16-year-long production run of the model

1987 License agreement for making the Fiat Cinquecento signed (September 9)

1991 Cinquecento production launch. Fiat 126p model production in Tychy discontinued after reaching 2,166,349 units

1992 Fiat Auto Poland set up (May 28).
A new paint shop, one of the most environmentally-friendly in Europe, opens in Tychy

1996 ISO 9001 Quality Assurance Certificate

1997 The plant reaches the 1 million Fiat Cinquecento milestone. Fiat Seicento production launch

1998 Fiat Cinquecento production run ends after making 1,164,525 units

1999 The plant output reaches 272 thousand cars, a record year for the 90's

2001 ISO 14001 Certificate (environmental management)

2002 ISO Integrated Total Quality Management, Environmental Protection and Occupational Safety Certificate

2003 Fiat reaches the 1 million Fiat Seicento milestone.
Fiat Panda production launch.
Fiat Panda 4x4 production launch

2005 Fiat wins "EFQM Recognized for Excellence 2005" diploma in the EFQM European Quality Award competition (European Foundation for Quality Management)

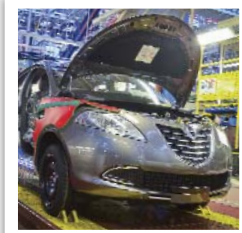
2006 EFQM European Excellence Award EEA – finalist (EFQM Excellence Award)

2007 Fiat reaches the 1 million Fiat Panda milestone.
Bronze Level WCM.
Fiat 500 production launch

2008 Abarth 500 and Ford Ka production launch

2009 Silver Level WCM. Tychy Plant production reaches 605,797 cars, a record volume in the plant history.
Fiat 500C production launch.

2010 Fiat 600 production run ends after reaching 1,328,973 units.
Abarth 500C production launch.
Lancia Ypsilon production launch in December.



2012 Fiat Panda production run ends after reaching 2,168,491 units.
ISO 50001 Certificate (energy management).

2013 Fiat 500 production run ends. Gold Level WCM (December 6)

2015 Fiat Auto Poland to be changed to FCA Poland as of 1 April

Cars manufactured in Tychy and Bielsko-Biala through December 2014






	Syrena	126 Bielsko-Biała	127	126 Tychy	Cinquecento	Uno	Innocenti Mille	Punto, Brava/o, Marea, Ducato, Iveco Daily*
1971	117							
1972	9,002							
1973	33,987	1,500						
1974	39,028	10,007	227	11,512				
1975	37,166	20,015	153	58,429				
1976	37,011	23,200		132,314				
1977	36,051	24,987		159,545				
1978	38,002	23,719		173,689				
1979	38,054	26,533		182,323				
1980	35,605	32,997		122,831				
1981	19,042	27,161		123,273				
1982	14,012	33,398		144,387				
1983	7,022	40,045		143,394				
1984		51,606		139,283				
1985		58,573		142,343				
1986		60,700		140,564				
1987		62,003		143,017				
1988		63,776		143,249				
1989		64,056		129,824				
1990		59,969		76,372				
1991		47,340			6 020			
1992		61,135			83 299			
1993		69,549			192 294			
1994		49,899			188 973	9,106		
1995		54,947			204 508	12,553		
1996		60,418			205 296	29,784	6,170	5,633
1997		47,392			203 589	30,316	6,279	33,501
1998		36,556			80 546	22,866	2,325	19,719
1999		28,444				21,514		18,575
2000		12,400				21,837		11,033
2001						15,758		
2002						9,682		
2003								
2004								
2005								
2006								
2007								
2008								
2009								
2010								
2011								
2012								
2013								
2014								

344,099 units

1,152,325 units

380 units

2,166,349 units

1,164,525 units

173,416 units (**28 590** + **144 826**)

14,774 units

88,461 units

Production in Tychy
Production in Bielsko-Biala
Record production of a model

* Assembly in the SKD system: Fiat Punto (57,026), Brava (19,122), Bravo (3,842), Marea (2,846), Ducato (2,893), Iveco Daily (2,732).
** Total: Fiat 500 (since 2007), Abarth 500 (since 2008), Fiat 500C (since 2009), and Abarth 500C (since 2010).







Seicento/600 | Palio Weekend | Siena | Panda | 500** | Ka | Ypsilon

Total production

	units	years
TYCHY PLANT	8,963,100	1975-2014
BIELSKO PLANT	1,710,040	1971-2000
FSM	3,349,487	1971-10.1992
FAP*	7,323,653	10.1992-2014
FAP* and FSM	10,673,140	1971-2014

* FCA Poland as of 1 April 2015

1,328,973 units

34,138 units (**12 365** + **21 773**)

50,151 units (**3 514** + **46 637**)

2,168,491 units

1,127,197 units

398,275 units

147,653 units

Seicento/600	Palio Weekend	Siena	Panda	500**	Ka	Ypsilon	Total
633	427	11,706					117
152,755	7,846	17,578					9,002
253,345	8,841	13,286					35,487
236,283	6,033	4,911					49,262
175,092	3,530	2,638					68,846
143,923	4,879	32					118,640
115,504	2,080						193,352
69,317	502						221,266
54,918							238,276
46,115							250,925
35,976							169,034
25,166							170,683
10,794							191,454
9,152							195,000
			86,046				197,856
			236,608				203,043
			231,982				202,567
			262,178				206,793
			260,695				207,305
			247,131				189,793
			298,020				129,732
			246,064				144 434
			205,765				261,843
			94,002				247,978
				65,116			278,178
				201,542			307,410
				184,143			329,889
				185,105			337,866
				157,232			344,005
				151,364			292,497
				182,695			197,018
				198,287			158,516
					19,046		203,630
					112,840		306,427
					92,927		286,900
					67,205		308,293
					54,613		361,787
					51,644		492,885
					54,502		605,797
						207	533,455
						37,561	467,763
						48,524	348,503
						61,361	295,700
						61,144	313,933
							10,673,140

FCA POLAND – TYCHY PLANT

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