





The Racing Laboratory

🏁 In the new Porsche Motorsport Centre, a small range of pure-bred racing cars are manufactured by hand. Production of the high-performance vehicles follows a precise strategy based on the fabrication principles in use at the main Zuffenhausen plant. By means of lean processes, the motorsport experts create the foundation for worldwide success.

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Production-model racing Porsche style: Clarity, order picking trolleys and the pull principle characterise assembly within the factory



At the southern edge of the Porsche Development Center in Weissach, the heart of Porsche motorsport is quietly beating. The noise and hectic atmosphere of racing does not penetrate this space. In the building that is set farthest back within the new motorsport complex, with a great deal of care, a dozen mechanics are producing Porsche's successful models for race tracks around the world. The principle is that everything is done by hand—without using an assembly belt. In accordance with this, the production of racing cars is organised very much in the style of a classic factory. However, this does not mean that the centre has neglected to define new structures in the profit centre. “In place of the traditional workshop assembly, we rely on modern continuous flow production similar to the lean production principle employed in Zuffenhausen and Leipzig,” explains Philip Morsey, Director of Motorsport Technology and Logistics. At Porsche, racing and mass-production are closely related even in this regard.

In order to implement the sports concept, Morsey, a former consultant, also relies on the support of his ex-colleagues at Porsche Consulting. “A decisive factor in the success of the restructuring process was that the new procedures were understood, accepted and put into practice,” emphasises Frank Jahn, who supported the project as a process planner in the racing division. In order to create the necessary understanding, Jahn and two other workshop managers were given a preparatory briefing on the concept and the expertise behind it, in the Porsche Consulting Akademie in Bietigheim-Bissingen. As is typical in the world of motorsport, the adaptation took place at full throttle. Only three months went past between planning and setting up the factory.

The result is a production site that exudes the aura of a racing laboratory. Anyone looking for assembly belts here will be disappointed. Instead of these, two production lines have been installed in the 800 m² hall. The

racing cars do not move forward in a set rhythm, rather they are constructed piece for piece at a total of eight stations, in accordance with set work contents. On the left-hand-side, at five assembly points, the motorsport specialists are manufacturing the new 911 GT3 RSR, based on the current 911 model. In front of the large glass facade at the end of the hall, a 911 body shell rests on an assembly stand. Everything is completely white. The race car roll cage has already been welded. Four stations further on, the racing tyres are in the process of being fitted. The wedding takes place between the two RSR models or the cockpit is installed.

On the right-hand-side of the production hall, the colour palette changes. Black takes the place of white. The structures of the RS Spyder's two carbon monocoques can be made out clearly. The sport prototype, in which a total of three teams will be starting the American Le Mans Series this season, takes up three stations. A quick glance is enough to recognise the clear line-management within the factory. The sun casts its rays through the large glass facade and bathes the hall in bright light. Here there are specialists at work, here clinical cleanliness and order reigns. The fact that the maximum height of the racks is 1.50 metres ensures the best possible overview of the whole area. However, the new transparency was only one objective of the optimisation. The greatest possible flexibility and short paths were regarded as further preconditions. Processes are organised such that both lines can be modified to meet changes in requirements in the future. The rapid change in strategy underlines the proximity to racing. Everything is on rollers. Work stations, storage areas, resources and processes can be moved to their new locations within an extremely short time, thereby guaranteeing that the new demands can be met.

In practice, the result is that the experienced team at the Weissach site can assemble an RS Spyder, made up ▶



of a good 5,000 components, in approximately two working weeks. The production of the 911 GT3 RSR is arranged so that one may be constructed each day. The assembly and throughput times have drastically reduced compared with workshop production. “Back then, the mechanics were not working in line with a set process plan, but were building the racing cars depending on the available resources,” explains Philip Morsey. The strategy was changed overnight. When the old 911 GT3 RSR (based upon the 996) was discontinued, workshop pro-

duction came to an end. Today, everything runs strictly in line with optimised processes—following a set principle: the mechanics pull (obtain) the components from what are known as order picking trolleys in accordance with the pull principle. These trolleys are equipped with the necessary materials for each station. As soon as the rear lights, seats or cockpit components have been installed and the next vehicle is waiting in line, an employee promptly refills the trolley with the appropriate parts. The closest racing supermarket is practically round



Black or white: The 911 GT3 RSR and the successful RS Spyder are assembled by specialists, in parallel



the corner—in the new logistics store, which is more than 2,000 square metres large and primarily serves as Porsche Centre for motorsport customers worldwide. Each year, components with a total weight of between 600 and 700 tonnes are dispatched from here into the entire world. The structures within the SAP-controlled store have also been reorganised, resulting in the lifting of the previous distinction between the customer sport store and the development store. This gave the racing division a further pole position in its endeavours for still

higher productivity. “As a result of the merger, we have created a single, integrated store that gives us the opportunity to work even more flexibly and productively,” reports Morsey.

Consequently, the components for the sports cars (with just under 500 PS) built in Weissach are always available precisely when they are needed. At the same time, the processes slot into the system as a whole, thanks to well-functioning interfaces. The reorganisation has ▶



therefore been a double success for racing car production. Engine assembly, which takes place just a few steps away from the main assembly, has also received strategic fine tuning. It was organised in line with the same lean, efficient workflows and is now integrated optimally into production as a whole. For example, the 3.8 litre, six-

employees' work contents cover between 30 and 150 hours. In Zuffenhausen, with five to thirty minutes, these values are already far beyond the average for the sector. This is good for the employees' motivation and increases identification with the vehicles. When a Porsche wins, however, the wrench of parting with it is quickly forgotten.



Philip Morsey: The same strategy as in Zuffenhausen



Consummate manual work involving 1,400 individual components

cylinder motor for the 911 GT3 RSR passes through four stations before the 1,400-plus individual parts come together into a technical masterpiece and the engine makes its way to the installation station in the manufacturing area.

The intensive work in the racing laboratory gives rise to a special relationship between human and machine. In the open space in front of the logistics store, as two 911 GT3 RSRs are being loaded for transport to the USA, some employees are overcome by feelings of wistfulness. Morsey remarks that “due to the high complexity of our products, every person in the team bears an extremely great responsibility. With such demanding high-tech puzzles, boredom just does not get a look in.” The

There has been plenty to celebrate recently. In the USA, the RS Spyder repeatedly shocked the extremely high-class competition and celebrated many remarkable overall wins. This leads to buyers coveting similar vehicles and makes all Porsche racing cars real export hits. Even before the start of the season, Porsche Motorsport reported a new record. Whilst 50 vehicles were built each year during the mid 1990s, for 2007 the figure was more than 270 pure-bred racing cars. This means that Porsche is not only by far the most successful brand in motorsport, but also builds the greatest number of racing cars.

Lean for success—across the board and at the top of the table. ◀



Porsche Customer Motorsport

From the start of the 1999 motorsport season, Porsche has concentrated the activities of its racing division entirely on customer motorsport. With the development of competitive racing cars, with technical service and the use of works drivers for selected teams, as well as by organising complete race series, Porsche has put a unique customer motorsport concept into practice. The foundation for this concept is provided by the Porsche Sport Driving Schools throughout the world, club sport and the Porsche Sports Cup. On the next level up, the GT3 Cup Challenges (USA, Brazil and New Zealand), offer thrilling motorsport with the demanding 911 GT3 Cup, aimed principally at amateurs. At a semi-professional and professional level, the Porsche Carrera Cup races are held. The championships in Asia, Australia, Germany, France, the United Kingdom, Italy, Japan and Scandinavia are regarded as exceptionally demanding, both with regard to the driving and the technical challenges. They are particularly popular with young racing drivers at the start of their career. The Porsche Mobil1 Supercup is regarded as a top series. It is the only Gran Turismo championship in the world that takes place as part of the FIA Formula 1 World Championship. In international championships such as the American Le Mans Series (ALMS), the FIA GT Championship and the Le Mans Series, Porsche customers rely on the record-breaking 911 GT3 RSR. At the very pinnacle of the Porsche Motorsport pyramid, the RS Spyder sport prototype is used in the ALMS LMP2 class.