Innovative by tradition: 90 years of engineering services by Porsche

23/04/2021 Since Ferdinand Porsche founded his Stuttgart engineering office in 1931, the Porsche name has been closely associated with engineering services. Nine decades on, we take a journey through automotive history.

When Ferdinand Porsche founded a engineering office in Stuttgart under the name 'Dr. Ing. h.c. F. Porsche Gesellschaft mit beschränkter Haftung, Konstruktion und Beratung für Motoren- und Fahrzeugbau' and had it entered in the commercial register on 25 April 1931, he could already look back on a successful career as a chief designer for renowned automobile manufacturers. For some, his move at the height of the world economic crisis was a risky one – but it soon became clear that the engineering office could hold its own against the international competition. In the 1930s, it advanced to become one of the most important centres of automobile development.

Auto Union racing car set three world records

The engineering office received its first official order from the automobile manufacturer Wanderer in the spring of 1931. Under the internal designation Type 7, Porsche designed a 1.5-litre, six-cylinder engine as well as the chassis. The first complete vehicle, which followed the same year, was the Porsche Type 8 with an eight-cylinder engine, although this did not actually enter series production. In the spring of 1933, Ferdinand Porsche was commissioned by Auto Union to develop a 16-cylinder racing car. The first test drives of the Auto Union car took place in November 1933, and during its first season in 1934 it set three world records and won several hillclimb races as well as three international grands prix.

The office had also been working on building an inexpensive small car since 1933. Soon after, it received an order to design prototypes for Volkswagen. In 1936, the government of the German Reich decided to build the Volkswagen its very own factory, which Ferdinand Porsche was also commissioned to plan. At the same time, the engineering office was working on any number of other orders. For example, the Type 110 tractor with an air-cooled two-cylinder engine became the basis for the later 'Volkstraktor', as well as the tractor series produced after the second world war.

New start with Ferry Porsche

With the increase in the number of air raids on Stuttgart, the egineering office was relocated to Gmünd in Carinthia, Austria, in 1944. After the end of the war, it found itself in a difficult economic situation. In April 1947, Ferdinand Porsche's son Ferry struck out to venture a new start and, together with his sister Louise Piëch, founded Porsche Konstruktionsbüro GmbH, which was also based in Gmünd. The first

large order in the post-war period came from the Italian company Cisitalia. The result – the Type 360 race car completed in 1947 – featured a state-of-the-art chassis with double longitudinal control arms at the front and a double-joint swing axle at the rear, as well as all-wheel drive.

In the spring of 1947, Ferry Porsche formulated his first ideas for building a sports car, which was given the design number 356. In February 1948, a road-ready chassis was produced, for which a sleek aluminum roadster body was subsequently produced. The Porsche 356 'No. 1' Roadster mid-engine sports car received the official blessing of the authorities on 8 June 1948, when the Carinthian provincial government issued its general operating permit. This marked the birth of the Porsche sports car brand. Production of the rear-engine Porsche 356/2 began in the second half of 1948.

Despite the successful start as a vehicle manufacturer, engineering services remained an integral part of Porsche's range of services. Overseas customers such as the Studebaker Corporation also placed their trust in the office: between 1952 and 1954, Porsche developed a four-door saloon with a self-supporting body in a modern pontoon design for the US car manufacturer.

The think tank

One of the secrets of Porsche's success was the extensive testing of its designs. From 1953 onwards, a small airfield near Malmsheim, some 30 kilometres from Stuttgart, was available for certain types of tests. However, the increasingly complex vehicle development process led to the decision to build a dedicated test track, which was to be designed according to the needs and preferences of the testing departments. On 16 October 1961, ground was broken for the construction of the facilities in the Weissach and Flacht districts, 25 kilometres west of Stuttgart. A circular track called a skid pad was built to test driving performance and lateral acceleration, as well as two circuits. Other special sections were also built, including pothole and rough pavement sections.

Porsche was growing apace in the 1960s, and in addition to the market launch of the Porsche 901 in 1963 – renamed the 911 a year later – and its increasing involvement in motor racing, a large number of customer orders kept the development team busy. Over time, it became increasingly apparent that additional test benches and workshops would be needed for vehicle testing. By the end of the 1960s, plans for the Porsche Development Centre Weissach (EZW) had begun to take their final shape. In the fall of 1971, the entire development department, including design, relocated there from Zuffenhausen. From 1974 onwards, a building in the shape of a standard hexagon was constructed, which ensured perfect opportunities for working and collaboration. The innovative idea behind the concept: the EZW was to be comprised of many small think tanks, which would endow the central 'brain' with a high rate of response and development through short neural pathways.

Successive expansion of the Development Centre Weissach

The following years saw the successive expansion of the EZW. The Measuring Centre for Environmental

Technology (MZU) was equipped with six exhaust gas test benches in 1982. Construction of the test building for engines (PMA) began in 1983. In May 1986, Porsche opened what was then the world's most modern wind tunnel. The third construction phase was completed on 29 September 1986 with an extensive crash facility, which offered modern testing capabilities, regardless of what the weather was doing, as well as the flexibility to adapt to new testing techniques.

Since the 1990s, development trends such as reducing fuel consumption and emissions, improving active and passive safety, or replacing mechanical components with electronics have meant that more and more factors had to be taken into account in customer orders. This increased the amount of coordination required within the EZW, and with the engineering service teams. In addition, the expansion of the Porsche model range and its entry into the luxury SUV segment with the Cayenne required that a keen focus be directed at managing the company's own projects. In order to meet the new demands in terms of project management, Porsche placed the EZW engineering services unit on a new footing in 2001 with the founding of Porsche Engineering Group GmbH. Since then, all Porsche customer projects have been pooled there, while work continues on internal sports car developments for Porsche. One of the first projects was a water-cooled V2 motorcycle engine – the 'Revolution Engine' – developed for Harley-Davidson in 2002.

Internationally active

Porsche Engineering took the first step on its international growth path in 2001 when it opened its location in Prague, which specialises in complex technical calculations and simulations. Since 2012, the company has also been operating one of the world's best-known automotive test sites: the Nardò Technical Centre in Apulia, southern Italy. More than 20 test tracks and test facilities extend over an area amounting to 700 hectares, and Porsche Engineering also offers engineering services such as acoustic testing and the testing of driver assistance systems.

The year 2014 was decisive for the ongoing development of Porsche Engineering for two reasons. On the one hand, Porsche returned to the endurance race at Le Mans after an absence of 16 years, and took overall victory for three consecutive years with the 919 Hybrid, starting in 2015. Porsche Engineering developed the complete energy storage system for the innovative drive concept – from the mechanical structure to the complete system control and testing.

Also in 2014, the company founded a subsidiary in China. Since then, the Shanghai location has formed the interface to local companies, as well as being a strategic partner for Porsche developments for the Chinese market. It specialises in chassis, electronic components and systems, test automation, rapid charging and technology scouting. In 2016, Porsche Engineering rounded off its expertise in the areas of function and software development with its subsidiary in Cluj-Napoca, Romania. An office in Ostrava in the Czech Republic has boosted Porsche Engineering's expertise in the field of software development even further since 2018. The team at Porsche Engineering is therefore in a position to develop electronics solutions for a wide range of requirements – including ones for the vehicles of the future.

The international network also enables the engineers to implement complete vehicle developments and present their customers with turnkey results. Porsche Engineering proved this with the Porsche Cayenne Coupé: as general contractor, the service provider was responsible for the entire process chain, from the concept and testing to monitoring the start of production in 2019.

Porsche Engineering has a clear vision for the future of the automobile: it has a perceptive ability, processes the impressions, keeps learning and therefore adapts increasingly well to customer requirements. It forwards information to the back end, where all fleet data is validated and optimised in the cloud. It then receives new software packages with improved and enhanced features 'over the air' (OTA). This creates the basis for seamless integration of the vehicle into the customer's digital ecosystem and for efficient electric drive units. Autopilot functions will also only be feasible when there are new electronics architectures and connectivity concepts. As the overall vehicle developer, Porsche Engineering is implementing these new functions in their entirety, including software, hardware and the networks they require.

More than just automotive development

Porsche Engineering's development services have not traditionally been limited to the vehicle sector. The company developed a sled for luger Georg Hackl in which he could change the damping while driving, thereby achieving a higher cornering speed. The result was a silver medal at the 2002 Winter Olympics in Salt Lake City (USA). In 2007, the engineers developed three electronic components for the Seabob sports watercraft made by the manufacturer Cayago: the battery manager, the motor control unit and the control panel with graphic display.

Info

Text: Richard Backhaus

Text first published in the Porsche Engineering Magazine, issue 2/2021

Consumption data

Taycan Turbo S (Predecessor model)

*Further information on the official fuel consumption and the official specific CO_2 emissions of new passenger cars can be found in the "Leitfaden über den Kraftstoffverbrauch, die CO_2-Emissionen und den Stromverbrauch neuer Personenkraftwagen" (Fuel Consumption, CO_2Emissions and Electricity Consumption Guide for New Passenger Cars), which is available free of charge at all sales outlets and from DAT (Deutsche Automobil Treuhand GmbH, Helmuth-Hirth-Str. 1, 73760 Ostfildern-Scharnhausen, www.dat.de).

Image Sublines

Path: media/Images/img_1.jpg
Title: Auto Union Type C, 1936, Porsche Engineering
Subline: Legendary: the Auto Union Type C racing car in the pits (1936)

Path: media/Images/img_2.jpg
Title: Porsche Type 360 "Cisitalia", Porsche Engineering
Subline: First order after the war: Porsche Type 360 "Cisitalia

Path: media/Images/img_3.jpg
Title: Erwin Komenda, Ferry Porsche, Ferdinand Porsche, l-r, 356 Nr. 1 Roadster, 1948, Porsche Engineering
Subline: Birth of the sports car brand: Ferry Porsche (centre), his father Ferdinand Porsche (right) and Erwin Komenda with the 356 No. 1 Roadster - the first vehicle to bear the Porsche name (1948)

Path: media/Images/img_4.jpg
Title: Construction of the "Skid Pad", Weissach, 1962, Porsche Engineering
Subline: Circular track for tests: construction of the "Skid Pad" in 1962

Path: media/Images/img_5.jpg
Title: Development centre in Weissach, 1975, Porsche Engineering
Subline: Perfect working environment: aerial view of the development centre in Weissach (1975)

Path: media/Images/img_6.jpg
Title: Nardò Technical Center, 2021, Porsche Engineering
Subline: World famous: the Nardò Technical Center in Apulia

Path: media/Images/img_7.jpg
Title: 919 Hybrid, Nr 19, Le Mans, 2015, Porsche AG
Subline: The winning 919 Hybrid at the 24 Hours of Le Mans driven by Nico Hülkenberg, Earl Bamber and Nick Tandy (2015)

Path: media/Images/img_8.jpg
Title: Taycan Turbo S, 2021, Porsche AG
Subline: Porsche Engineering is developing the intelligent and connected vehicle of the future as an international technology partner - including functions and software

Path: media/Images/img_9.jpg
Title: Cayago Seabob, 2007, Porsche Engineering
Subline: Sports equipment: the Cayago Seabob stood out with its pioneering impeller drive with battery technology from Porsche Engineering

Link Collection

Link to this article
https://newsroom.porsche.com/en_US/2021/company/porsche-engineering-anniversary-90-years-24298.html

Media Package
https://pmdb.porsche.de/newsroomzips/33811fb0-fbde-4507-bcfc-a1b81df49daa.zip

External Links
https://www.porscheengineering.com/peg/en/

Dr. Ing. h.c. F. Porsche Aktiengesellschaft
Porscheplatz 1
70435 Stuttgart