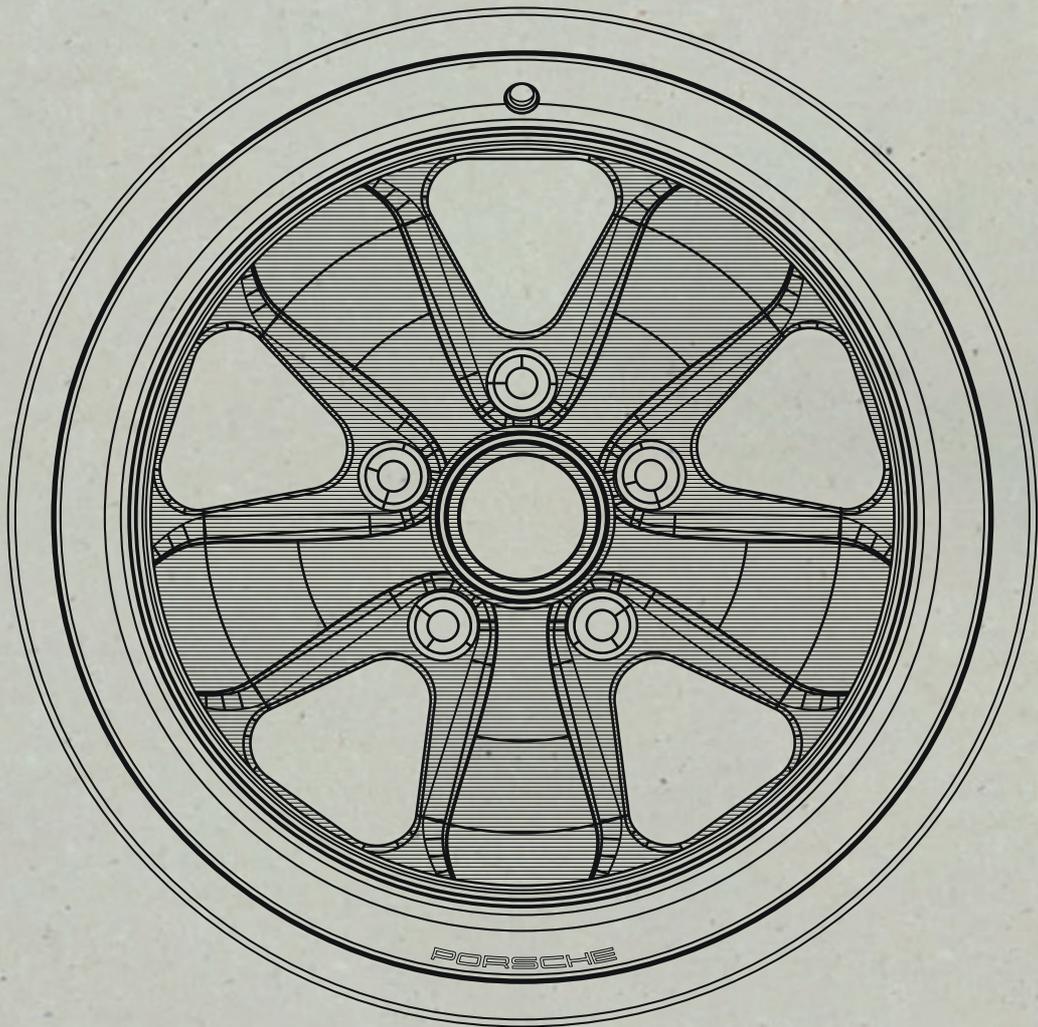


NEWS FROM PORSCHE CLASSIC

# ORIGINALE

08 | TEILE. TYPEN. TECHNIK.



PORSCHE

# 1



## Heroes

Each genuine part has its own exciting story to tell. Experience each of these stories and get a unique insight into three specially selected parts highlights.

The Porsche 911 Classic Club Coupe was created in two and a half years from a used 911 Carrera, built in 1998 (type 996) for the Porsche Club of America (PCA). The spine of this edition is the same Club Blue used by the oldest and largest Porsche sports car club.

# 99636217000

The legendary Fuchsfelge® (Fuchs wheel) is making a comeback: Porsche Classic is offering the redesign with a retro look for selected derivatives of the 911, type 993 and 996, and the Boxster type 986. The forged wheels are particularly high-performance thanks to their manufacturing technology. Cem Zorba, a specialist in quality management and project manager at Porsche Classic, knows exactly how they're made. Like his development partner, Jörg Ludwig from OTTO FUCHS KG, he knows every detail. A visit to the Sauerland region.

Cem Zorba (top) from Porsche Classic and Jörg Ludwig from OTTO FUCHS KG pushed ahead with the development of the Fuchsfelge®.



Can we push it even further? The 911 of the 996 generation has long since matured into a coveted young classic. Porsche Classic is now offering a component for this model that builds a bridge to early Porsche classics: the legendary Fuchsfelge® (Fuchs wheel). "The reinterpretation of the historic Fuchsfelge® offers attractive options for individualising the 996," explains Cem Zorba from Porsche Classic, who's been working intensively on this wheel for months. He's a specialist in quality management in the field of chassis and bodywork.

Individualisation is becoming increasingly popular. And on top of its reference to history, this wheel has a lot going for it: "The performance is better than that of the standard wheel, even with these 18-inch wheels," adds the expert from Porsche Classic. The obvious reason: the low weight of the forged wheel significantly reduces the weight not under suspension. The driving dynamics are noticeably optimised. "And despite the modern design adjustments that underline the sportiness, the close connection to history is maintained throughout!" says Cem Zorba. The dimensions of the new Fuchsfelge® are 8Jx18, ET 52 at the front and

10Jx18, ET 65 at the rear. The sizes are suitable for the following models: 911, type 993 Carrera 2 and Carrera 4 from model year 1996; 911, type 996 Carrera 2, Carrera 4, GT3 up to model year 2000; Boxster, type 986. The new Fuchsfelge® can be ordered from all Porsche Centres and will, of course, also be fitted there on demand. It is supplied with the matching hub cap with a coloured Porsche Crest. It looks perfect when black wheel bolts are used.

Because of this one particular wheel, Cem Zorba keeps visiting OTTO FUCHS KG in Meinerzhagen. His contact person is Jörg Ludwig. Ludwig is Head of Wheels Sales at the wheel manufacturer. He likes to demonstrate the advantages of a forged wheel in a clear and straightforward way. In the wheel world of OTTO FUCHS – a showroom with both current and historic Fuchsfelge® – there's a sign next to two apparently identical rims asking you to lift them. Zorba lifts both products and, as a specialist in this project, knows in advance what to expect. The result is clear. "These are worlds apart," he says. "The forged aluminium wheel weighs less than twenty pounds," explains Ludwig, "the cast wheel weighs almost twice that much. We don't even need to talk about a steel wheel." He then reports on the excellent material properties of the forged wheel. That's why the wall thicknesses can be reduced that much, so much in fact "that the light almost shines through," he adds with a laugh. But the forged wheels have other advantages: "The wheel bends when

**The reinterpretation of the historic Fuchsfelge® offers attractive options for individualising the 996.**

overloaded, for example when driving through a large pothole," says Ludwig, listing a very realistic scenario. And what happens with a cast wheel? "That got scrapped long ago." In short: forging technology ensures increased safety.

## The starting point for the new edition of the Fuchsfelge® was the 911 Classic Club Coupe, type 996.

The history of the legendary Fuchsfelge® begins in 1965 with the 911 S. The vehicle was to have an extremely light, robust wheel. But everything available at the time just wasn't suitable. The solution led to OTTO FUCHS KG, which had already gained a lot of experience in lightweight construction. The only question was: could this be transferred and adapted to sports cars? The company from the Sauerland region accepted the challenge. The rest is history. Until 1989, the forged wheel with cult character was bolted to many 911s as either standard or special equipment. "The classic design was phased out with the G model. Porsche Classic now also offers this rim for the younger classics," explains Cem Zorba.

Is it correct to say "rim" or "wheel"? Ludwig: "Strictly speaking the rim is only the outer ring that carries the tyre." The wheel is therefore the complete package, consisting of rim, wheel disc and hub. "But because everyone has been talking about Fuchs rim since 1967, that's what we're doing," he adds with a grin.

The traditional Fuchsfelge® is unique. It's the very first non-welded and non-riveted wheel ever. The highlight: it's forged from one single piece. The design is decisively influenced by the creator of the 911, Prof Ferdinand Alexander Porsche, and made its debut at the IAA in

Frankfurt in September 1965. The audience's reaction was amazement. On 21 December 1965, Porsche ordered the first 5,000 units from OTTO FUCHS. The forged aluminium wheels initially only appeared on the 911 S presented in 1966. Soon after the market launch, they became a popular individualisation option for other 911s.

The triumph of the Fuchsfelge® continued in motorsport. From 1968 to 1970, they prominently appeared on the vehicles with which Vic Elford and twice Björn Waldegård won the Monte Carlo Rally. In 1972, the very sporty top model 911 Carrera RS 2.7 featured the eye-catching anodised Fuchsfelge® with some areas painted in colour. Decades later, they still prove their worth in many 911 variants of all performance classes in racing. The list could easily go on and on.

OTTO FUCHS KG is one of the most important wheel manufacturers for Porsche Classic. "We always keep in close contact," emphasises Cem Zorba happily. When referring to the name FUCHS, he's not speaking about a supplier, but of a "development and cooperation partner". Ludwig returns the compliment immediately: "We were delighted when Porsche Classic approached us with the idea of working together on the 996 project."

The starting point for this new edition was the 911 Classic Club Coupe (see page 44), which references the 997 Sport Classic. For this one-of-a-kind car, Porsche Classic developed a suitable Fuchsfelge® together with OTTO FUCHS KG. The experience was so positive that those responsible decided to make a new edition for all Porsche Classic customers. "We wanted to enable our customers to be able to mount this factory one-off wheel on their vehicle. The top priority was to get as close as possible to the original," explains Zorba.

In the production halls of OTTO FUCHS KG, Cem Zorba and Jörg Ludwig observe how the blanks are formed (left photo), which are then stacked and waiting for the next work step (right photo).



It didn't stop with a simple order in Meinerzhagen. On the contrary: the specialists from Zuffenhausen spent many days searching through their archives. First of all, all wheel variants approved for the 996 and the first Boxster had to be determined and compiled. The wheel dimensions were different back then, even the inner widths for the wheel bolts varied. Finally, they succeeded in finding a version that covered as many derivatives as possible. The decision was initially made in favour of 18-inch wheels, which match the "narrow" body of the 996, including the four-piston brake system.

And for the very first time, prototypes of this Fuchsfelge® were created in close cooperation with OTTO FUCHS KG. "It was only possible to fall back on what was already available to a limited extent. The wheel, with its shape and design language, perfectly matches the 911 (type 996) and is optimised for Porsche Classic," explains Ludwig. Porsche is primarily responsible for getting road approval for these wheels.

The tests are tough, because the Porsche standards are particularly high. The large number of tests, including the cornering fatigue test, impact and radial impact

tests, and the determination of material properties, safeguards that the components have the operational strength to resist material fatigue. The Porsche wheel test standard covers all common and country-specific guidelines. The demand for a realistic assessment of operational strength is carried out by the biaxial wheel and hub test. It includes maximum loads taken from the Nürburgring circuit. In addition, the high-speed tests are carried out on the roads of the Porsche Technical Center in Nardò and other racetracks.

Cem Zorba also praises the cooperation with the Development Centre in Weissach on the project: "Without our colleagues, this project with all its necessary tests would certainly not have reached its goal."

Jörg Ludwig and Cem Zorba enter a production hall. There they encounter the managing partner of OTTO FUCHS KG, Dr Hinrich Mahlmann. He wants to take a look at the project himself – this is a matter to be handled by the boss. Container-sized presses tower behind him. It smells like metal. The pounding of a hydraulic press is accompanied by a lively hissing

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In "flow forming", the blanks are rotated like on a potter's wheel and given their final shape with the help of rolling discs. The "PORSCHE" logo is then laser engraved and the Fuchsfelge® is painted.

sound. There, metal clangs on metal, and over everything is a buzzing sound that fades in and out, like a circling airplane. This is what it sounds like when forged wheels are made.

At the beginning of the process there's a nozzle, a round block of metal sawn off a six-meter-long rod, the height of which is precisely measured for the wheel to be produced. "You're dealing with three stages. We're talking about a first blow, a final blow, and then the disc is punched," explains Ludwig. In the first step, the nozzle is pre-forged at 460 degrees Celsius with a force of 4,000 tons to form a rotationally symmetrical blank. In the second step, a 7,000-ton press is used. This is where the pre-forged blank gets its design. "It's like baking cookies," compares Ludwig. And finally, the later ventilation hole windows and the hub bore are punched out with 800 tons of pressing force, excess material is sheared off. The rough part is done.

But that was just the beginning. The best is of course saved for last: the rolling process, known in technical terms as "flow forming". To do this, the forged part is reheated and then rotated – like on a potter's wheel. Except that no hands are involved here, only rolling

discs. They bring the still very flat blank to the desired width and shape.

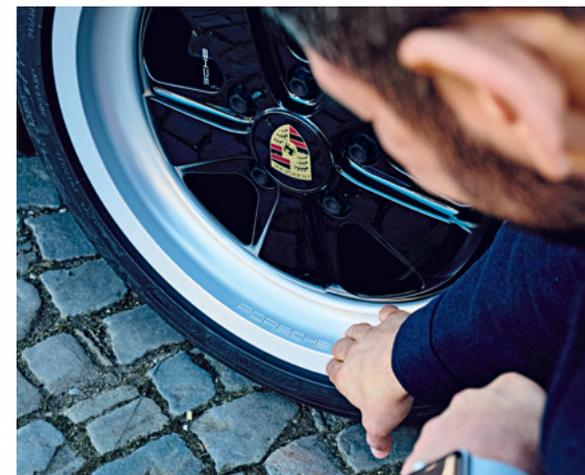
Cem Zorba looks at the production line and smiles: "When I think about the project and the challenges over time, I'm immensely pleased to be able to look at the ongoing production. How will it feel when I see vehicles with these wheels on the road?"

Finishing is next – turning, drilling and deburring. And finally the surface treatment, the anodising. The top layer of the aluminium is oxidised, resulting in a very hard and chemically stable aluminium oxide layer. "This anodised layer is not only corrosion-resistant, but also provides a good adhesion base for the gloss black paint," emphasises Ludwig.

This of course also works on the Fuchsfelge® for the 996. A sharp outer contour emphasises its sporty character.

One little thing is still missing for perfection: each of these rims is decorated in the very last step – the "PORSCHE" logo is laser-engraved so that it is clearly visible to everyone. ■

With a finished rim, Cem Zorba and Jörg Ludwig leave the production halls to meet Dr Hinrich Mählmann to present the result. Because the Fuchsfelge® for Porsche is a top priority here. ↓



### Fuchsfelge® 10Jx18, ET 65 rear axle

Part no. 99636217000

- 993 (1996–1998), only for Carrera 2 and for Carrera 4, only for Coupé
- 986 (1997–2004), only in conjunction with 17 mm spacers
- 996 (1998–2005), only for Carrera 2 and 4 and GT3 up to model year 2000



### Fuchsfelge® 8Jx18, ET 52 front axle

Part no. 99636216000

- 993 (1996–1998), only for Carrera 2 and for Carrera 4, only for Coupé
- 986 (1997–2004)
- 996 (1998–2005), only for Carrera 2 and 4 and GT3 up to model year 2000



