

## **Lighter than aluminum, stronger than steel: Carbon Mobile launches the Carbon 1 MKII, the world's first smartphone made of carbon.**

*Thanks to a unique monocoque design, the world's first carbon fiber smartphone is 30 percent lighter than a conventional smartphone. Manufactured with less than 5% plastic, it marks a new era of alternative sustainable materials in tech.*

**Berlin, 01 March 2021:** Developed in Germany, the Carbon 1 MK II, is the world's first smartphone made with a carbon fiber monocoque, the most advanced material of this century. Carbon fiber is primarily used in racing, the aircraft and automotive industries, as well as in other highly specialized applications, due to its unparalleled strength to weight ratio.

The Carbon 1 MKII is the result of years of research and development: its incredibly thin (6.3 millimetres) and lightweight (125 grams) monocoque body is created by weaving carbon fiber together with complementary 'radio enabled' composite materials to solve connectivity problems. This new hybrid material is called HyRECM (Hybrid Radio Enable Composite Material) technology and represents a major breakthrough in materials science for the sector.

The Carbon 1 was engineered with sustainability in mind, produced with less than 5% plastic material it shows the industry how to move away from unrecyclable plastics and hard to recover metals. The device is available online now and from mid-March in selected specialist shops and retail partners at an RRP of 799 euros incl. VAT.

Firas Khalifeh, CEO of Carbon Mobile, says: "Today I can proudly say that we have achieved the impossible. The world's first carbon fiber smartphone has arrived here in Germany and is ready to go into the hands of our fantastic customers and partners. It has been an immense effort by a small but dedicated team that has come together to challenge an industry that has been stagnant in terms of material innovation.

The last 12 months have been incredibly challenging, with Covid-19 disrupting the final stages of testing and production. However, against all odds, we have survived and come back stronger. We used this time to perfect our HyRECM technology and drive design decisions that were intended for the next device. The result is a truly beautiful and meaningful device. I look forward to seeing the reaction of our customers and the industry to this device, which we believe represents a pivotal moment in the future of smartphones. "

### **HyRECM Technology**

Despite its advanced properties for producing robust yet lightweight structures, carbon fiber is also an electromagnetic conductor. This means that it blocks radio signals and forms a Faraday cage where it does not allow the signals to pass through, but instead spreads them around the outer casing. Connected devices with carbon fiber are therefore considered an unimaginable dream in the tech industry. Following four years of research and development, the Carbon Mobile team has achieved a groundbreaking process what no other manufacturer has done before.

Carbon Mobile's revolutionary patented HyRECM Technology process (Hybrid Radio Enabled Composite Material) forges carbon fibers with a complementary composite material with signal processing properties to unlock the material's potential and make "radio-enabled" devices possible. The result is a robust carbon fiber-based monocoque structure that is not only incredibly thin and light, but also made from less than 5% plastic.

## **Handcrafted performance**

Through their continuous research and development, Carbon Mobile's engineers have reduced the production time of designs using HyRECM technology from three hours in 2017 to just 30 minutes in 2021. This continued innovation is accelerating composite material manufacturing times towards the mass production lead times required to compete.

Today, craftsmanship still plays an important role in the production of each Carbon 1 MK II and the value lies not only in the material itself, but also in the attention to detail that goes into each device.

Unlike cheap plastic injection moldings or pressed metals, all Carbon 1 MKIIs are unique. Only the finest carbon fiber material, sourced from Germany, is used for the carbon fiber body. The life of each unit begins with an experienced engineer who hand-cuts the material and oversees the entire molding process. The end result is a beautiful and individual handmade device.

## **Monocoque design**

In designing the Carbon 1 MKII, the engineering team took advantage of carbon fiber's excellent strength-to-weight ratio and drew inspiration from Formula 1. It is the first smartphone to feature a carbon fiber hybrid-formed monocoque chassis. This means that all of the device's internal hardware is fixed into the chassis with watchmaker-like, micrometre precision. More than just the structural skin, it also plays the role of the device's nervous system. This includes all the critical embedded smart technologies, including the patented HyRECM technology and a smart thermal solution.

## **A Bauhaus Masterpiece**

Carbon Mobile's designers drew inspiration from Bauhaus design principles. Working with carbon fiber allowed them to redefine smartphone design. Unlike conventional plastics, the wonder material offers incredible strength and natural beauty. Following the motto "form follows function" and staying true to the material's properties, the team was given the opportunity to create something completely revolutionary. At Carbon Mobile, functionality means perfecting miniaturization without compromising on performance.

Carbon Mobile's designers and mechanical engineers have worked tirelessly to seamlessly integrate HyRECM technology into the design. The triangular top and bottom joints, where carbon fibers are seamlessly connected to the complementary composite material, provide both stability and a distinctive carbon aesthetic.

## **Less than 5 % plastic**

Unrecyclable plastics and metals that are difficult to recycle are the industry standard in smartphone technology. They are partly responsible for 50 million tons of e-waste worldwide each year. Carbon Mobile's mission is to bring advanced materials in consumer electronics to market. Materials such as carbon fiber and kevlar have revolutionized sectors such as aerospace, motorsport and energy. Yet their beneficial properties have been ignored in technology used by millions of people every day. Carbon Mobile has recognized the benefits and future prospects of carbon fibers and sees itself as a pioneer in the development of diverse manufacturing processes. They believe that advanced high-tech materials are the disruption needed for a sustainable future in consumer electronics. To contribute to this, Carbon Mobile builds devices that are lighter, thinner and more durable. Each Carbon Mobile device can be disassembled into its raw material and reused, closing the material loop.

World's thinnest Gorilla® glass comes from partner Corning®.

Corning® is just one of the major partners supporting this exciting project. At 0.4 mm, the processed Gorilla® Glass 7 is the thinnest and strongest glass yet made by Corning® and is a key component in the design of the device. "Corning® Gorilla® Glass Victus offers premium durability for devices," said Scott Forester, Division Vice President, Marketing & Innovations Products, Corning Gorilla Glass. "In designing the Carbon 1 Mark II, Carbon leveraged the superior performance of Gorilla® Glass Victus to create a slim, thin and lightweight smartphone that appeals to the tech-loving lifestyle."

Inside the featherweight design wonder is a powerful eight-core MediaTek Helio P90 processor with 8GB of RAM and 256GB of internal storage. Photo lovers will get their money's worth with the 16MP dual camera on the back and the 20 MP selfie camera. The crystal clear 6" AMOLED display resolves at 2160 x 1080 pixels.

The device is delivered with Google's Android 10 operating system. An upgrade to Android 11 will be delivered promptly, further operating system upgrades and continuous security updates are also guaranteed.

Another strategic partner of Carbon Mobile is the globally renowned specialty chemicals group LANXESS. The company's experience and expertise in engineering plastics and composites was an important factor in the development of the Carbon 1 MKII's unique monocoque. "Our composite material Tepex, which we developed for the extremely lightweight design of highly stressed components, not only enables very thin wall thicknesses. With its high stiffness and strength, it also helps ensure that the housing is very robust in everyday use," explains Philipp Genders, Project Manager in the application development of fiber reinforced composites at LANXESS. "In addition, the matte black carbon fiber gives the smartphone a classy, high-tech appearance."

Images and further information can be found [here](#).

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Innovation designed in Germany

Berlin-based Carbon Mobile GmbH is a German technology company with a big vision: to be the new European alternative with a diverse portfolio in consumer electronics. In doing so, Carbon Mobile aims to shake up a sluggish and saturated market that is hungry for innovation and to trigger a rethink towards sustainable production.

About LANXESS

LANXESS is a global specialty chemicals company that develops, manufactures and markets chemical intermediates, additives, specialty chemicals and plastics. Its High Performance Materials business unit is one of the leading producers of the engineering plastics polyamide (PA) and polybutylene terephthalate (PBT) as well as thermoplastic fibre composites. This composite technology, which is offered under the brand name Tepex, involves plastics reinforced with fabrics made of highly resilient fibres.