

Bcomp & KTM Technologies win JEC Innovation Award

- Bcomp & KTM Technologies win JEC Innovation Award 2022 for motocross brake cover
- Component uses flax fibres to reduce the CO₂ emission of the thermoset part by 82%
- KTM Technologies' CONEXUS effectively bonds thermoset and thermoplastic parts
- Vast potential for technology transfer to large-scale road applications within the KTM family or for third parties

Fribourg, Switzerland... A motocross brake cover developed by Swiss sustainable lightweighting company, Bcomp, and collaborator Austrian KTM Technologies, has won a 2022 JEC Innovation Award. Combining the best traits from thermoset and thermoplastic polymers, the innovative part also cuts thermoset-related CO₂ emissions by 82 per cent.

The cover uses a pre-impregnated version of Bcomp's technical fabric ampliTex™ to form the basis of a lightweight and stiff structure. Once cured, the flax fibre composite part uses KTM Technologies' CONEXUS coupling layer to bond reinforcement ribs, fasteners and edge protection in the form of PA6, a thermoplastic. With an innovative chemical composition, CONEXUS provides a direct bond between thermoset resin of the natural fibre composite and PA6 thermoplastic components.

The PA6 is over-moulded, providing complete edge coverage of the flax fibre part while protecting against interlaminar damage caused by impacts or flying debris – a regular impact during motocross – and providing an aesthetic surface finish. Compared to a traditionally injection moulded part, the Bcomp and KTM Technologies brake cover saves weight, has increased stiffness and reduced vibrations, all while significantly reducing the part's overall CO₂ footprint thanks to carbon-neutral ampliTex™. After product life, the coupling layer allows a separation of the parts, due to a lower melting temperature than the thermoplastic material.

Made entirely from flax, ampliTex™ is a versatile weave developed for sustainable composite production. By integrating ampliTex™ instead of a regular carbon and glass fibre layup, Bcomp and KTM Technologies reduced the CO₂ footprint of the thermoset components by around 82 per cent.

Another important benefit of using Bcomp's flax technology is that the parts are safer for riders and marshals. Unlike carbon fibre which shatters and splinters, composites made using ampliTex™ feature

ductile fracture behaviour. This also means that carbon fibre-related punctures would also be a thing of the past.

With sustainability and the circular economy becoming an increasingly important force within motorsport and mobility, projects like this brake cover are breaking new ground. With ongoing advancement in the development of fully bio-based epoxy resin and bio-based PA6 already available, KTM Technologies plans to develop a completely bio-based brake cover in the near future. At the end of the part's life, the thermoset and thermoplastic components can be easily separated thanks to the CONEXUS foil, the PA6 can be recycled and reused while the natural fibre composite can be used to generate electricity via thermal energy recovery.

Hans Lochner, Team Leader Material & Application at KTM Technologies, commented: "With this demonstrator component, we have succeeded in proving the series production capability of this technology. This is an important milestone for our efforts in the field of sustainable engineering and the use of bio-based composites. This is a testament that with bio-based plastics and fibres, it is possible to produce performance components in series. We are very proud to see that our project and technology was recognized and awarded by the JEC committee."

Michael Heider, Lead Engineer Material & Application at KTM Technologies, commented: "The reduction of the CO2 footprint in the production of motorbikes and scooters will play an even more important role in the future. Particularly two-wheelers powered by electricity or e-fuels are an alternative to cars in daily individual transport due to their low weight and small footprint with a good range. This segment is going to prove a large applicability for numerous components to use this technology. We are looking forward to further develop this and other parts together with Bcomp and our partners."

Christian Fischer, CEO and Co-Founder at Bcomp, commented: "This project has been an exciting demonstration of the progress made by KTM Technologies and Bcomp and we are thrilled to have been shortlisted and win a 2022 JEC Innovation Award. The idea of sustainable bodywork with valid and beneficial end-of-life options is revolutionary with far-reaching implications. KTM Technologies's CONEXUS has been a critical enabler of our ampliTex-based composites in new applications, allowing us to add local reinforcements, attachment points and edge protection using thermoplastic parts while

still gaining the advantages of our flax fibre composite technologies. Thank you to the organisers and judges of the JEC Innovation Awards 2022 for this important recognition.”

Johann Wacht, Motorsport & Supercars Manager at Bcomp, commented: “The innovative race ready bond between a high-performance thermoset ampliTex™ natural fibre reinforcement and a bio-based thermoplastic, enabled by KTM’s unique Conexus technology, delivers sustainable lightweighting parts with significant scalability potential. We have proven that motorsport is the perfect platform to showcase, test and validate technologies while delivering first scaling opportunities towards large-scale series applications. We truly believe that this innovation can be an important step for the premium mobility sector towards a sustainable circular economy.”

The motocross brake cover will be presented at JEC World 2022 from 3-5 May in Paris at Bcomp’s booth, Hall 5 A45.

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Note to Editors

About KTM Technologies

Mobility beyond existing solutions. Innovative lightweight construction. Applied technologies. Three factors that KTM Technologies deals with every day, to develop reliable and safe solutions and innovative possibilities. Expanded with a deep understanding of the entire vehicle, the highly qualified employees at KTM Technologies solve challenges in many industries - from the first idea to serial production. As a specialist in concept development, KTM Technologies GmbH has specialised in mobility concepts, high-performance and lightweight technologies. Learn more: www.ktm-technologies.com/en/home

About Bcomp

Bcomp develops, manufactures, and sells sustainable lightweighting solutions for high-performance applications. A dedicated engineering team provides support throughout the process, from idea to final part. Bcomp’s unique approach of applying the latest composites knowledge to natural fibres have caught the interest of many industries, from sports to mobility, luxury yachting and even space. Multiple ongoing development projects with global OEMs highlight the relevance for large scale automotive applications. For more information, visit bcomp.ch