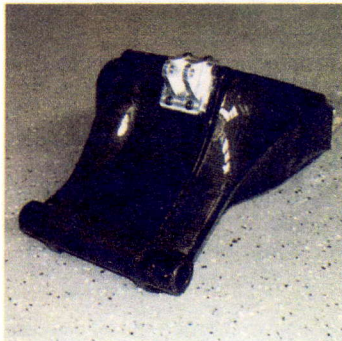


Carbon ring



DEMAT

In the special Campus area at EuroMold 2006 in Frankfurt, University of Applied Sciences Zwickau presented a project sponsored by the Federal Ministry of Education and Research and aimed at the development of equipment for the production of components made of fibre composite materials for the vehicle industry.

The research aims at implementing a concrete vehicle component used in practice - not a purely academic example. Thus, using the example of the already existing rear-wheel wing of the MZ 1000 S motorcycle, it was demonstrated how component optimisation by the use of fibre composite materials works successfully and can be improved by this technique. The project consists in

converting a component from the vehicle industry by means of material substitution, using fibre composites. A special sewing technology was used in the production process. The original aluminium wing served as a reference component at the finite-element-analyses. The loads, which have caused deformations, should absolutely be kept by the rear-wheel wing made of carbon fibre reinforced composites (CFK).

The rear-wheel wing was dimensioned appropriately. By varying the layer thicknesses and fibre orientation, it was possible to adjust the deformations and the material strain.

In contrast to the original wing of the MZ 1000S, which was designed according to the

principle of the tensile and compressive stick, the rear-wheel wing made of CFK is designed in shell construction. By this high-tech material, stiffness and strength as well as the weight can be minimized. The mass was reduced by over 1 kg compared to the aluminium wing, featuring a component mass of 6.4 kg.

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