



## **An idea that saves lives**

**flexHVC – Flexible Humanitarian Vehicle Concept – is the brainchild of student Johannes Schmutzler, who came up with the idea as the subject of his graduation thesis. flexHVC is an all-terrain coach that can be used to transport sick or injured patients and serve as a mobile care and surgical centre in crisis-torn areas. Schmutzler was supported by the bus and coach experts from MAN Truck & Bus.**

Efficient medical care in refugee camps and war and crisis regions is a highly sophisticated logistical challenge. This recognition formed the basis for flexHVC – Flexible Humanitarian Vehicle Concept – designed by Johannes Schmutzler, a student at Offenbach University of Art and Design. As the subject of his graduation thesis, Schmutzler chose to design a vehicle concept that was tailored to humanitarian aid requirements, and received assistance from the design experts at MAN Truck & Bus.

Schmutzler chose a coach as the ideal basis for his flexHVC plans because of its size and the scope it offered for custom interior design. “flexHVC is based on this flexibility, and on the spaciousness and extensive possibilities offered by a coach”, explains Stephan Schönherr, Vice President Design Bus at MAN Truck & Bus, who acted as thesis supervisor with his team. The all-terrain MAN GL 8x8 with front-mounted engine was chosen as the chassis. The vehicle’s all-wheel drive system enables it to cope with the toughest road conditions. In addition, the modular body allows 6x6 or 4x4 models to be deployed depending on needs.

flexHVC is divided into three separate areas. A living unit for up to four people and the cab are situated at the front. To protect the crew in war-torn regions, the vehicle has an armoured floor and extra cab protection. The large centre door is a fast, easy entrance and exit point for emergency and aid staff. The exterior of the vehicle is designed to ensure that it and its function are immediately recognisable in any cultural environment without

MAN Truck & Bus is one of Europe's leading manufacturers of commercial vehicles and supplier of transport solutions, with revenues of approximately €9 billion a year (2015). The product portfolio includes trucks, buses and diesel engines, as well as services related to passenger and cargo transport. A subsidiary of Volkswagen Truck & Bus GmbH, MAN Truck & Bus employs more than 35,500 people worldwide.

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the need for written signage. But it's the rear of the coach that reveals its highly specialised nature. Here, a system of rails is fitted that enables two 'modules' (in the four-axle model) to be loaded into the vehicle from the rear.

The modules can contain a variety of equipment and features and can be aligned to the specific requirements of the situation. One module type can be fitted with up to six beds, enabling the flexHVC to carry a maximum of twelve beds if needed for transporting sick or injured patients. Other possible modules contain a fully equipped operating centre, or basic medical equipment such as would be found in a standard medical practice. Medical professionals can thus use the flexHVC as a base to carry out general medical examinations and X-rays as well as emergency surgery; at the same time, they are completely mobile instead of being tied to a single location.

"flexHVC could be used for many different purposes in both civilian and military settings. The unconventional design concept opens completely new perspectives concerning mobility and growing global challenges. It points the way to the future", says Schönherr. Mindful of the need to transport the coaches to the regions where they would be needed, Johannes Schmutzler designed the vehicle dimensions to enable them to be shipped in standard ISO containers.

The student paid particular attention to the exterior of his vehicle and its impact on the public. "Coaches are not associated with negative emotions and are generally not perceived as threatening, unlike many other types of vehicle. This is a major advantage", explains Schönherr. Despite its ruggedness, the design of the flexHVC features rounded, welcoming lines complemented by clear-cut functional elements, while retaining the possibility of integrating new MAN design language in the future.

"For the MAN Design Team, it's always refreshing to experience the wealth of creativity in students' ideas and enter this world of young designers and users. University projects of this kind are thus a definite win-win situation. They offer students the chance to discuss ideas with MAN designers, gather experience and familiarise themselves with the challenges of daily design routine at a major commercial-vehicle manufacturer – and we view these projects as a welcome opportunity to explore the innovative impetus of the students", enthuses Schönherr.



P\_Bus\_MAN\_flexHVC1.jpeg

P\_Bus\_MAN\_flexHVC2.jpeg

Caption:

Pointing the way to the future: the vehicle concept by student Johannes Schmutzler could be deployed in crisis-torn regions, to significantly enhance medical care for the sick and injured while offering improved working conditions for medical staff.