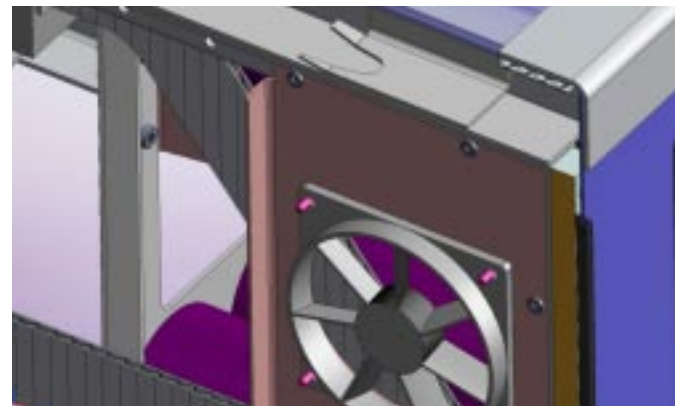
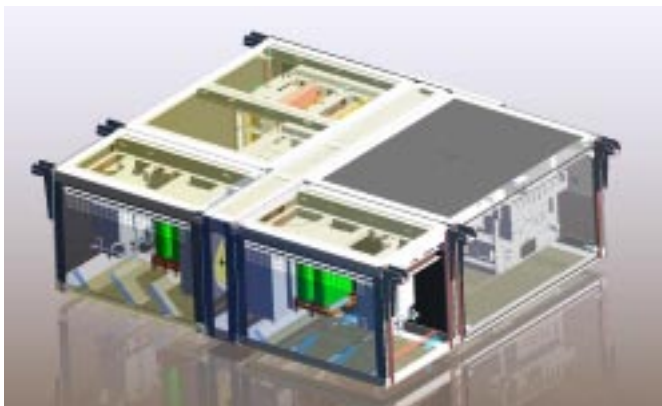


ADHESIVE JOINING TECHNOLOGY

BONDING INSTEAD OF WELDING



Above:

From virtual prototypes ...

Right:

... to heavy-duty container systems

In recent years, adhesive technology has been applied in all known means of transport – thanks to the development of high-strength and tough adhesives, which can also withstand crash loads.

Adhesive technology offers a crucial advantage compared to welding: If components are permanently bonded with an appropriate structural adhesive, the construction possesses a higher level of stiffness and crash capability in case of both static and vibrating loads. SMA Railway Technology GmbH would also like to make use of these properties for the mechanical design of its containers.

The aspects of stiffness, crash capability and stability play a leading role when developing mechanical constructs. The joining means have a major influence on the stability, i.e. the ability of the structure to withstand certain loads without being damaged. After considering how these properties could be optimized, SMA decided to use high-strength structural adhesives in the construction of its container systems.



Advantages: „adhesive joining technology“, as it is known in technical jargon, has the following advantages:

- Component stiffening through large-area bonding
- Prevention of galvanic corrosion
- Vibration damping
- Sealing function

Placing the highest demands on planning

For an exact assessment of the properties of the bonded container connections, a virtual prototype of the container system is created with a CAD application. Using this model, the character of the vehicle with its functions and properties is simulated so that the vehicle-related influences on the container in terms of safety and load capacity can be assessed.