



1 Front module of railway vehicle made of aluminum foam sandwiches with aluminum cover sheets

2 Milling center HPM 1850 U with machine carriage made of aluminum foam sandwiches

3 Slide of a machine tool for tool and die making with a welded construction made of aluminum-steel sandwiches

FROM RESEARCH TO SERIAL PRODUCTION

From demonstration ...

The aluminum foam sandwich segments of a INTIO regional train's front module have been produced at Fraunhofer IWU.

The development and realization of the front module has been implemented by Bombardier Transportation, Wilhelm Schmidt GmbH, AMIC Angewandte Micromesstechnik GmbH as well as the chair of construction and fabrication of the BTU Cottbus.

The designed technology is less expensive compared to the fiber-glass reinforced assembly. Furthermore, the aluminum foam front module is 25 percent lighter than the glass-fiber reinforced synthetic module. The new front module provides improved crash safety, vibration damping, recyclability and repair options.

... to serial production

The milling center Mikron HPM 1850 U arises from a cooperation of the Mikron AG (Biel, Switzerland) and the Niles-Simmons Industrieanlagen (Chemnitz).

Since 2004, the universal slide of the milling center can be purchased in the new aluminum foam sandwich design alternatively to the conventional sheet metal construction. Fraunhofer IWU has supplied the semifinished aluminum foam parts.

A weight reduction of 30 percent compared to the conventional carriage has been achieved with the aluminium foam design. Moreover the dynamic stiffness and especially the damping have been increased. As a result, an improved dynamic behavior with significantly improved accuracy and surface quality of the workpiece could have been achieved.

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