Temperature-controlled hydrostatic pressure test bench

Qualification of polymer foams as sandwich core material

Application-specific development

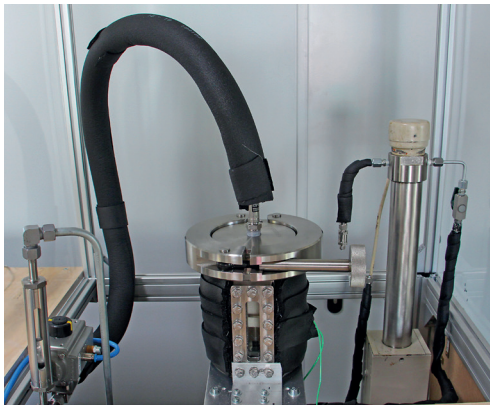
Polymer foams and the production of sandwich material composites with cover layers made from fiber-reinforced plastic are a research speciality of Fraunhofer ICT. Sandwich structures with foam core materials have a very high performance level in terms of strength and stiffness combined with very low weight. In order to assess the suitability of foams for use in lightweight composites, Fraunhofer ICT has developed a hydrostatic compression test rig on which foams can be characterized in terms of their temperature-dependent compressive strength.

With our test rig, we can use an inert silcone oil to apply all-around hydrostatic pressure to a polymeric foam sample. The entire system can also be temperature-controlled to simulate processing conditions in the manufacture of sandwich material composites with fiber composite face sheets. Thus, the foam materials can be tested for their process suitability as sandwich cores.

The testing laboratory at Fraunhofer ICT carries out investigations into polymer materials along the entire processing chain, from the raw material through to the component. The hydrostatic pressure test bench, including expertise, is available for industrial customers.

Our offer

- Characterization of foam materials with respect to their temperature-dependent compressive strength
- Test conditions up to 150 °C and 50 bar
- Precise data acquisition of temperature, pressure and flow rate
- Deformation behavior of the foams can be filmed, observed and measured
- Fully automated test procedure including customized software
- Various test routines: constant pressure, constant volume flow, pressure ramp



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