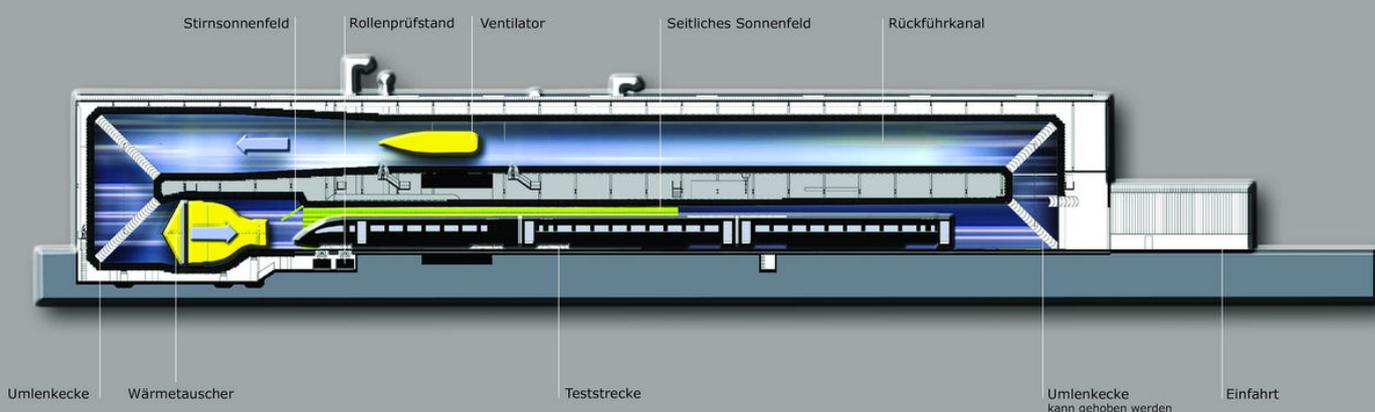


## Stimuli and know-how at Güntner on the subject of climate control chambers



<b>Line of Business:</b>	Air Conditioning
<b>Application:</b>	Air Conditioning
<b>Country / City:</b>	Germany / Karlsruhe
<b>Fluid:</b>	
<b>Product:</b>	Fin and Tube heat exchanger (finoox) GCO

In the tropics in the morning and on the ski slopes in the afternoon; a change of climate that you will probably only experience with exclusive tour operators – or in climate control chambers. The fact that this test equipment is not for tourism but for accelerating the development cycles of any type of vehicle became clear at the end of January 2006 at the 7th Karlsruhe vehicle climate symposium.

The list of participants was impressive: Audi, BMW, DaimlerChrysler, Ford, Isuzu, MAN, Porsche, Opel and VW – all of the big names. All 11 speakers made it clear during the course of the event that practically anything is possible using climate control windtunnels. Be it summer or winter, dry or wet, mountain or valley, snow or ice or day or night – practically any driving situation you can think of can be simulated using modern climate control windtunnels. There are 40 of these in Europe, 11 of which are in Germany alone. When vehi-

cle manufacturers perform tests it is a matter of simulating the dynamic and climatic conditions of road travel. This is how vehicle equipment is developed for the real thing. Vehicle climate control (ninety percent of cars are equipped with an air conditioning system nowadays) plays an important role, regardless of whether it is a car, truck, bus or even a train. The world's longest climate control windtunnel (100 m long), which took 2 years to build, cost 65 million and was started up in Vienna at the end of 2002, can hold up to three ICE carriages. Here, at Rail Tec Arsenal, unique climatic tests can be performed on rail vehicles and on road vehicles in smaller second tunnel. Even a military helicopter was subjected to harsh weather conditions in this equipment.

fan specialist TLT-Turbo were also speakers at Karlsruhe and made it clear that refrigeration and ventilation technology are some of the main constituents of air conditioning windtunnels.

More information about windtunnels can be found at [www.twk-karlsruhe.de](http://www.twk-karlsruhe.de) or [www.cawa-online.org](http://www.cawa-online.org).



View of train in the Rail Tec Arsenal windtunnel in Vienna

The systems that are used by car air conditioning system suppliers are considerably smaller, however. For good reason: When it is a case of simulating climate, valley and mountain driving, acoustics or daylight for cars, speed is of the essence. Because time is money, particularly in the field of vehicle development. With modern climate control windtunnels and climatisation chambers it really is possible to change temperature of the test chamber from -40 to +50 °C in just 3 to 4 hours. An impressive feat. The climate control equipment that is needed is supplied by major system builders such as Axima Refrigeration GmbH. Axima, Güntner as a supplier of heat exchangers and