

Cargoshell completes container concept with revolutionary reefer design

Containers in the future

In May 2014 *The Economist* paid attention to a statement of Dr Stephan Lechner (European Commission Joint Research Centre), made at the gathering of The American Association for the Advanced Science in Chicago. According to *The Economist* Dr Lechner proposed to make containers of carbon fibre composites. Such containers are lighter and should - if developed correctly - be possible to be foldable, which could yield a considerable saving of space.

Five years earlier

René Giesbers already thought of that idea five years earlier. In 2009 he presented, amid great interest, the Cargoshell: a sea container of composite which was also foldable. The presentation of the Cargoshell did not remain unnoticed in the national and international press. CNBC's Magazine even placed Cargoshell at number 11 of the most creative companies in Europe, above for example Philips and Vodafone.

Innovative

Two innovations in one go: the use of composite and the foldability (up to a quarter of the height, within 30 seconds and without special tools). The folding mechanism has now been patented and demonstrated countless times to those interested. The following challenge was to design a composite container strong enough to pass the heavy CSC test.

The second development phase

The second development phase concentrated completely on the composite and the folding mechanism was left for what it was. Composite has a number of excellent properties: it is **lighter than steel**, hygienic, low in maintenance and easy to clean. This development phase was completed successfully in October 2012 with the CSC certificate, granted by the Germanischer Lloyd in Hamburg

and was also approved for "Transport Under Customs Seal" and therefore fully meets the stringent requirements that the industry sets to sea containers. However, one property of composite remained underexposed: the **high insulation value**, suitable to be applied in cooling containers. There was a new challenge there as well: a cooling container (reefer) manufactured completely from composite.

The Cargoshell Reefer

The market for cooling containers is large and still increasing in size. After a long development phase the design for the Cargoshell Reefer is now ready and thoroughly tested for components. The production of the prototype has now started and will be completed in the upcoming months.

The final result looks promising: the composite reefer is not just **lighter**, but it also has a **higher insulation value** and a **lower carbon footprint** than the existing steel reefers. Of course the other advantageous properties of composite are kept and it can be produced on large scale for an attractive cost price. In addition, the problem of the delamination - a shortcoming often occurring in practice causing the insulation value of the container to decrease strongly - has been solved.

The production and test phase of the Cargoshell Reefer will take about another five months. The progress of this development can be followed by means of the newsletters on www.cargoshell.com.