10 minutes with...

Oksana Pilatova

GasVessel

Thanks for taking 10 minutes out with gasworld. It's our Packaged Gases issue, so tell us all about the new FRACO pressure vessel...
Sure, thanks for the opportunity. The FRACO is our innovative, ultra-high volume 300 bar pressure vessel. The FRACO has 30% more gas carrying capacity and can carry all types of industrial gases like CNG, hydrogen, carbon dioxide (CO_2) and more.

The FRACO has a unique combination of multiple benefits: it is big, light and versatile as it is suitable for marine, rail and road transport. The FRACO achieves great balance between capacity of transported gas, container weight, costs and scalability.

Could you tell us about how this product works?
In a few simple words: the FRACO container is a Type 3 carbon fibre composite ultra-high volume 300 bar pressure vessel. It can be used to transport a variety of compressed industrial gases.

Take hydrogen application as an example. Today, the high costs of hydrogen distribution are one of the main limiting factors for the wide adoption of green hydrogen. Green hydrogen can be considered green only if it is produced without greenhouse gas (GHG) emissions, meaning from renewable power using water electrolysis. Renewable power in large quantities is sourced, for example, from big hydroelectric power generation plants, or big solar or wind parks, which are usually not close to the hydrogen use locations. Distribution in compressed form in large quantities allows to keep the costs at competitive levels and to distribute the hydrogen easily from production to end use.

So what makes your product stand out from the crowd?
Pressure vessels are very well-known products with multiple producers on the market and a universe of consumers. One can easily find composite cylinders with 1-3m length. You can find also cylinders with 12m length and even 16m length, which are usually with relatively small up to 1m diameter width. Multiple such cylinders are required to transport big volumes of gas, which is not cost-effective or particularly efficient.

Our FRACO pressure vessel diameter is 2.4m with 12m length, and one cylinder per 40ft container, while the competition has minimum four cylinders per 40ft container – but sometimes up to 30 cylinders. Our FRACO solution, maximises the full useful space in the container and can transport 30% more volume in a standard 40ft container compared to competitive products. Further, the high speed gas loading-unloading process ensures longevity of the cylinders even after many years of operation.

An additional advantage of the FRACO is its versatility as the same FRACO can be used for CNG and hydrogen. The liner material we use has a multi-decade hydrogen compatibility proven history in the nuclear power plants applications with no embrittlement effect.

Is this a new or old innovation?
We have developed an innovative technology. The core patented innovation starts with the production of a metal liner with a very precise, thin (5mm) wall with a very high manufacturing precision (+/- 0.1mm) on the liner thickness.

Additional innovation is in the composite production process. This is a very big structure (2.4m x 12m) and the filament winding process requires a lot of know-how, which is based on the multi-decade experience of our technical team.

Has this product been updated to meet changing demands?
Absolutely. The initial idea was focused on very big pressure vessels as an in-build system in specially designed CNG ships. This concept received Approval in Principal from ABS (American Bureau of Shipping), then was supported by the German Regional Government, and afterwards by the EU Commission. Of course, during these years the global market dynamics changed, and we added the concept of a containerised solution and additional possibility to transport compressed hydrogen. gw