Demisable Containment Tanks

Fluoropolymer tanks designed to burn-up on re-entry to earth's atmosphere

It has become necessary for Space Propellant tanks to be demisable. Metal tanks do not disintegrate on jettison and re-entry, creating debris and hazards.

Hoslcot can manufacture 100% fluoropolymer tanks, which will completely disintegrate.

- Resistant to virtually all fluids and gases
- Compatibility tested with major propellants & solvents including Hydrogen Peroxide, MON and green propellants
- Lightweight

Specification:

- Made with FEP or PFA sheet, produced in-house by Holscot
- Can be glass re-enforced or over-wrapped with composites
- Outer surface can be etched to aid bonding to glass, carbon fibre, flexible elastomer, or metal
- Integral diaphragms can be incorporated for complete expulsion of propellant

Benefits:

- Manufactured to your design, constructions of any size possible
- Low recurring cost
- Quick turn-around of prototypes
- Proven manufacture
- Integral diaphragms can be incorporated for complete expulsion of propellant

Buying from us you will be able to benefit from the proprietary manufacturing techniques that Holscot have developed since forming in 1970 – such as extrusion, welding, thermoforming and chemical treatment. As well as our problem-solving approach to collaborative working.

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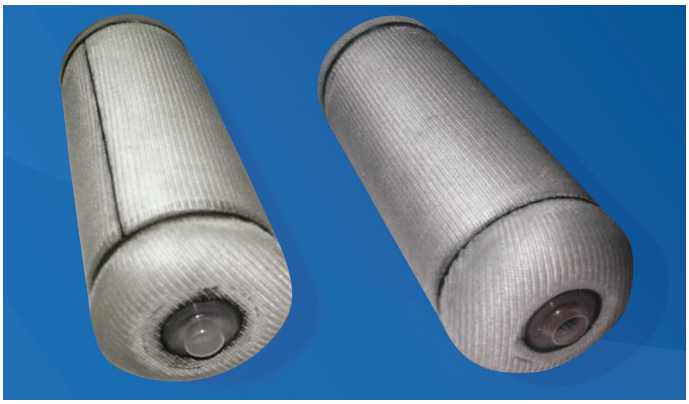
Case Study: Kaiser Compositek/Boeing



Background

Kaiser were tasked with developing a lightweight composite tank for containing rocket propellant.

Problem

The standard composites used in carbon fibre construction or special aluminium were not compatible with the contents. A liner was needed which would not be affected by the fuel.

Solution

It was rapidly established that FEP would be the material of choice because of its inertness. As renowned experts in the field of fluoroplastic fabrications, Holscot were called upon to work with Kaiser to develop a lined carbon fibre solution.

The shape of the tank was dictated by the space available. The resultant design had two dished ends and only one very small outlet. The liner needed to accept an overwrap of carbon fibre so had to have a bondable surface. This could be achieved either by etching the FEP of using the FEP glass backed laminate material. Prototypes were created using both materials. This necessitated developing new techniques to weld the FEP without having the benefit of an internal support. The result can be seen on the photos.

Following on from the work done with this development project, Holscot has been involved in projects looking into designed-for-demise propellant tanks constructed entirely of plastics, featuring an FEP glass backed, or carbon fibre backed, liner fabricated onto a mandrel and overwrapped with GRP or CFRP. The resultant tank not only meets the goal of demisability but also reduces the mass of the tank. The tanks can also be designed to incorporate an FEP diaphragm.

HOLSCOT™

To find out how Holscot can help you business
Call now on **+44 (0)1476 574771**
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