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An overview of Ball cryogen storage and delivery dewar systems

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Since the 1960s on the Gemini program, Beech Aircraft and now Ball Aerospace have been designing and manufacturing dewars for a variety of cryogens including liquid hydrogen and oxygen. These dewars flew on Gemini, Apollo, Skylab and Space Shuttle providing fuel cell reactants resulting in over 150 manned spaceflights. Since Space Shuttle, Ball has also built the liquid hydrogen fuel tanks for the Boeing Phantom Eye unmanned aerial vehicle. Returning back to its fuel cell days, Ball has designed, built and tested volume-constrained liquid hydrogen and oxygen tank system for reactant delivery to fuel cells on unmanned undersea vehicles (UUVs). Herein past history of Ball technology is described. Testing has been completed on the UUV specific design, which will be described.

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