

Cosmodyne Celebrates Golden Anniversary of Sampler Production

This year, Cosmodyne is marking the fiftieth anniversary of their Cryogenic Liquid Sampler which has been in continuous production since 1960. The Sampler has gained such wide acceptance in the cryogenic gases industry that it is frequently referred to as "the Cosmodyne" by its users, much as Kleenex® is used as the generic term for facial tissue.

The Sampler, which is the first and most successful design of its kind to obtain, store, and transport a sample of a cryogenic gas for laboratory analysis, received patent number 3,123,982 on March 10, 1964. Its design ensures that the sample obtained is truly representative of the fluid being sampled.

Born out of concerns about propellant purity for Intercontinental Ballistic Missiles (ICBMs), the design was developed to accurately sample cryogenic fluids with minimal distortion from flashing fluids.

The Sampler was tested at Edwards Air Force Base in the early 1960s. The Edwards test group purposely contaminated a tank containing liquid oxygen with a known trace quantity of propane and then withdrew samples using the Cosmodyne Sampler to determine if it provided an accurate sample—which it did. The United States Air Force published military specification MIL-S-27626, written around the



Cosmodyne sampler in 1968 and gave it the designation TTU-131/E. Thousands of Samplers have been manufactured in various sizes and configurations since its initial introduction to the Industrial Gas Producers and Military users.

Versions of the Sampler have been produced for use in liquid hydrogen and hypergolic fuels as well as liquid oxygen, nitrogen, argon, methane, and ethylene (among others). The most exotic of these were the versions used for the hypergolic rocket fuels, Unsymmetrical Dimethylhydrazine (UDMH) and Nitrogen Tetroxide (N₂O₄), neither of which is actually cryogenic but still in need of accurate sampling.

The Sampler is approved by the U.S. Department of Transportation (DOT) for shipment in its fitted case and meets European Pressure Equipment Directive (PED) requirements.



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CRYOGENIC GAS SAMPLER

3,123,982

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FIG. 1.

