Supported Fill Tube Target

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Target Purpose
- Developing a supported fill tube target was to help reduce perturbation caused by membranes. This concept may help mitigate instabilities which limit yield during implosions.
- This alternative design required the development of unique testing and assembly processes that differed from existing target platforms.

Test Target Build
- Tooling designed to enable repeatable micron-level adjustments and metrology inspections to deterministically place support rod.
- Tension needed to be adjustable to accommodate various material yield strengths.

Challenges
- Reliable metrology due to continuous capsule vibration.
- Complex motion of supported filltube during cryo cycling.
- Handling issues causing capsule to break off at fill tube glue joint.

Assembled Target
- Through the design and testing of new tooling a robust assembly plan was developed.
- 9 targets have been built using various materials: SiC, spider silk, Nano yarn, Aluminum wire.
- Al wire successful at mitigating sag to the point it can be compensated.
- Placement of support rod is critical.
- Needs extreme care in handling.