



A new and improved [HWTC apparatus](#) for thermal conductivity measurements of (nano)fluids has been recently developed. It employs innovative solutions for easy calibration of uniform Platinum wire tension and thus minimizing the strain influence on temperature measurement (i.e., minimizing the well-known and unwanted “strain-gage effect” on Pt-wire electrical resistivity); measurement of Pt-wire voltage drop independently from power wiring (four wires); and an effective off-centered mechanical design to minimize the fluid sample size (about 30 mL), but at the same time providing additional space for wiring (including three inside thermocouples for fluid temperature uniformity verification). Data acquisition hardware and software are optimized to minimize signal noise and enhance gathering and processing of useful data.

Fig 1: Photo of Improved Transient Hot-Wire Thermal Conductivity Cell (opened)

More at: www.kostic.niu.edu/DRnanofluids

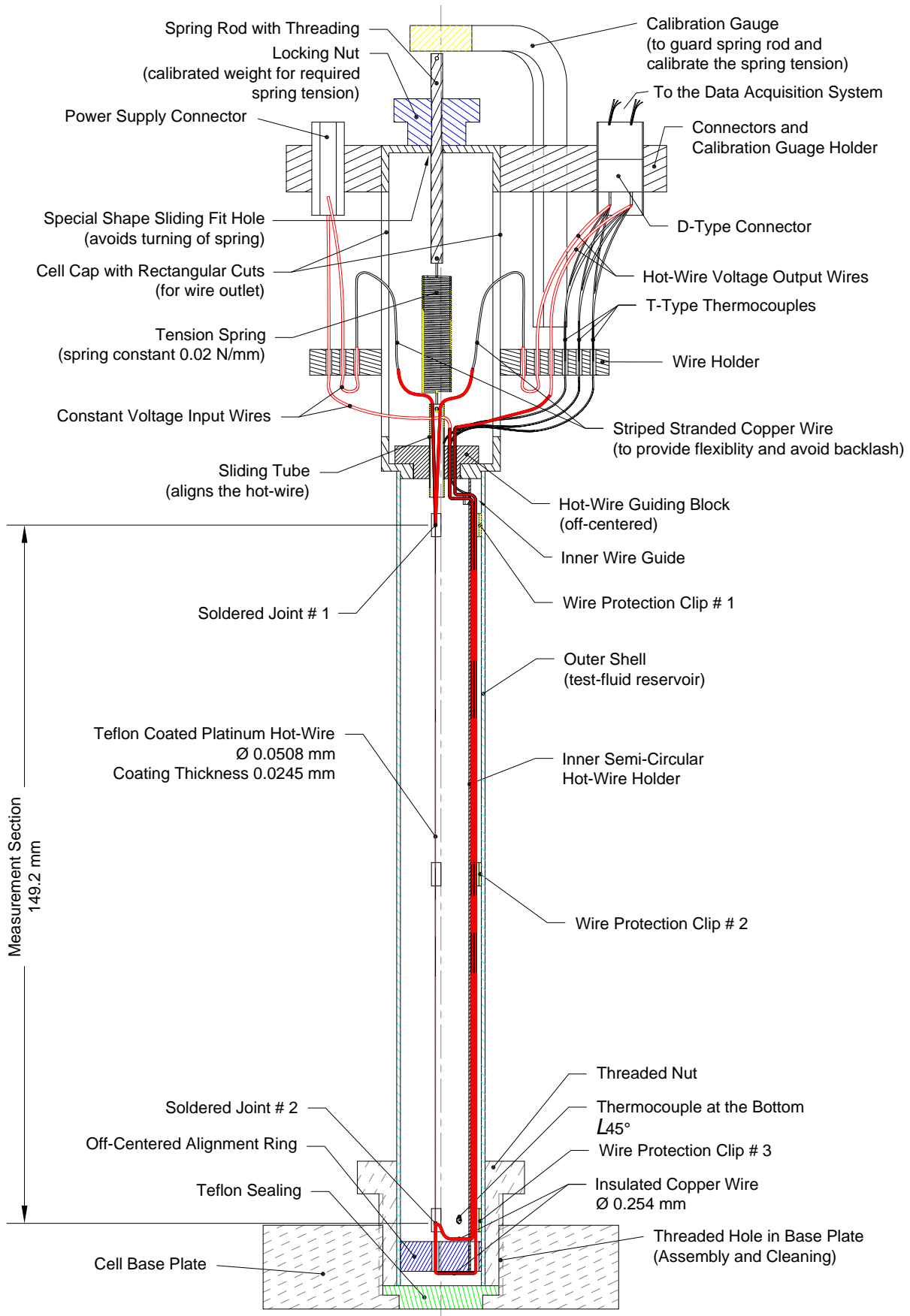


Fig 1: Cross-sectional view of improved transient hot-wire thermal conductivity cell
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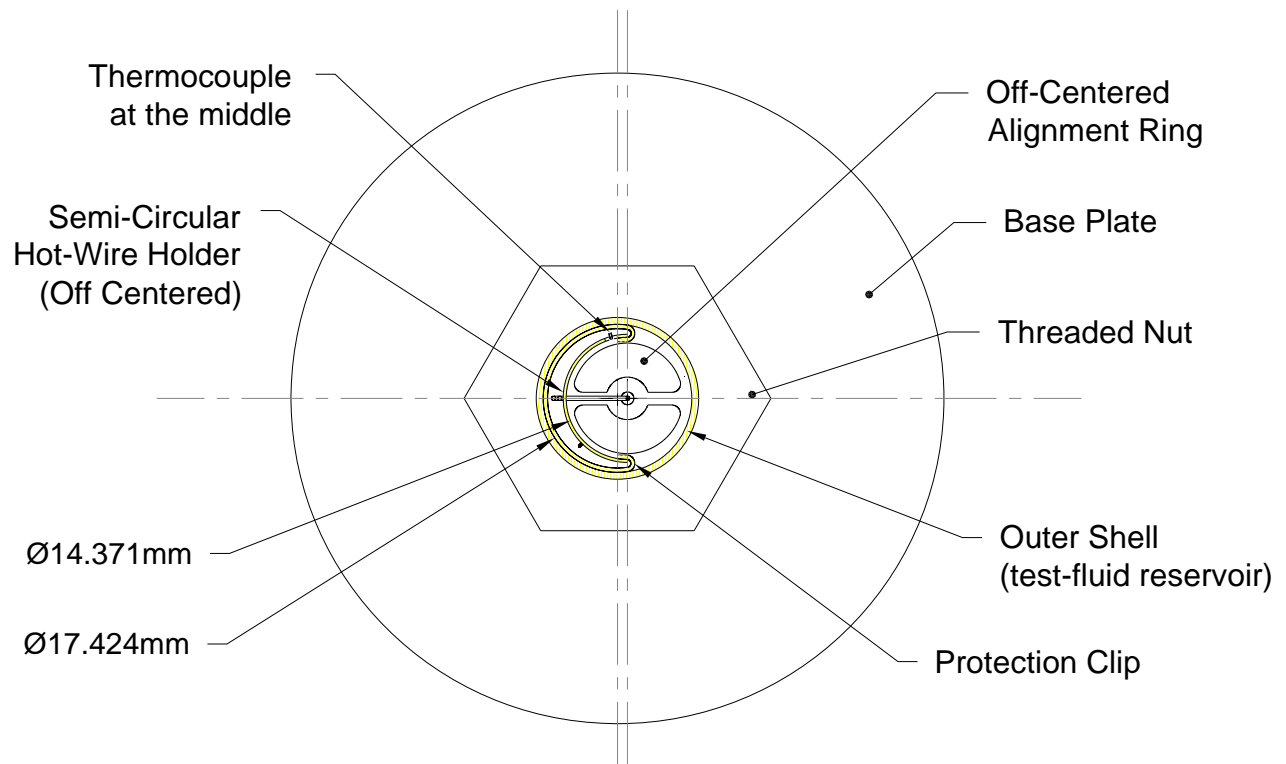


Fig 2: Cross sectional top view of the hot-wire cell at the middle
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