



HIGH PRESSURE NMR CELL WITH INTEGRATED VALVE



We've taken a high pressure NMR cell and integrated a needle valve into the body to provide a self-contained unit that does not require a continuous connection to an external pressure source. The sample can now be prepared on the bench, the valve closed, and the unit carried to the NMR spectrometer for data collection. Containment of the sample lasts for months without significant pressure loss.

The NMR tube is one of our proprietary and patented zirconia tubes with an inner diameter of 3.6 mm and an outer diameter of 5 mm. The internal volume is approximately two-thirds of a standard thin-walled glass NMR tube giving a surprisingly large active volume. The cell manifold easily assembles by threading the base piece to the main body component and tightening together to set the single-use seal. The standard NMR cell is rated to 14,500 psi (1,000 bar) and fully compatible with Bruker or Varian cryoprobes. It is intended to make available the tools for high pressure NMR spectroscopy work without requiring specialized NMR probe modifications or *a priori* high pressure experience. This tube is also ideal for implementing the reverse micelle NMR strategy in liquid ethane.

The wetted parts are chemically compatible with most solvents making this cell useful for a wide array of applications in multiple research areas: biophysics, petroleum industry, chemical process monitoring, gas phase studies, materials science, geology, and deep-sea research.

Customized solutions to fit your specific application are possible.

Wetted parts valve open	7068 aluminum, 316 stainless steel, 642 bronze, zirconia (NMR tube), PTFE, Viton
Wetted parts valve closed	7068 aluminum, 316 stainless steel, zirconia (NMR tube), Viton
Internal volume with valve closed	Bruker: 1.011 mL Varian: 1.067 mL
Valve needle displacement	16 μ L / full turn
Pressure range	0-14,500 psi (1,000 bar) maximum
Pressure connection	Manifold port is HiP AF1 (1/4"-28 UNF) for use with 1/16" tubing.
Allowed fluids	All fluids compatible with the wetted parts can be used in the cell. Examples are water, alcohols, alkanes, carbon dioxide, and xenon.



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