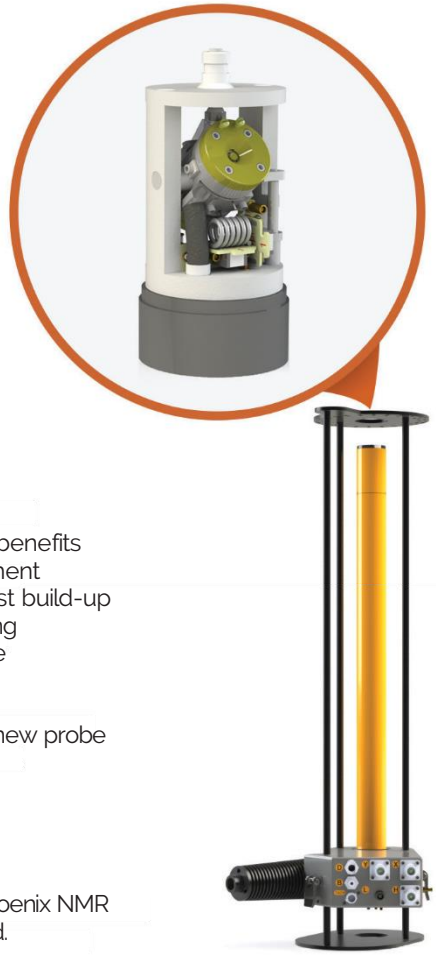
PHOENIXNMR

Elevating your science



TAKING PROBE DESIGN TO NEW HEIGHTS.

Phoenix NMR provides a highly innovative line of Solid State NMR probes packed with benefits designed to keep your focus on your science, not on your instrumentation. We implement features that provide modularity and performance, and eliminate condensation and frost build-up when operating at sample temperatures below room temperature. Our customer-facing modular probe design allows greater experimental flexibility with less expense. We are confident that you will find Phoenix NMR's products truly elevate your science.

While the table on the next page will highlight the broad range of features available in this new probe design, let us take a moment to describe its most innovative attribute: **modularity**.

A HIGHLY-FLEXIBLE MODULAR DESIGN.

What does customer-facing modularity mean? It means that when you purchase a new Phoenix NMR probe today, you are actually purchasing two components: a Probe Body and a Probe Head.

THE PROBE BODY houses all elements common to every PhoenixNMR probe, including:

- Frost and condensation free Variable Temperature system
- H to F or H and F high band tuning assembly
- Sample spin speed tachometer
- RF connectors
- High efficiency broadband high power tuning tubes
- Low Gamma Accessory to extend tuning to ^{41}K or lower

THE PROBE HEAD, on the other hand, houses all:

- Sample size-specific and channel configuration-specific items
- Band select elements (Trap and Series Capacitor)
- Magic Angle adjust mechanism and Spin speed fiber optics
- The spinning module
- Lock channel tuning elements
- Variable temperature isolation shells

When a Phoenix NMR Probe Body and Head are combined, they complete a probe capable of 1 to 5 channel operation, the details of which are governed only by the initial selection of the Probe Body and Probe Head module and your imagination. This gives you unmatched flexibility in the world of NMR probes because, at any time in the future, instead of purchasing a completely new probe, you only need to purchase a new probe head to expand your capability. This modularity provides you with the opportunity to expand your future research at about half the cost.

ONE PROBE / MULTIPLE RF CONFIGURATIONS

Let us give you an example scenario to make things clear. Imagine that your first probe purchase included a Probe Body with a lock channel add-on and simultaneous H and F high band tuning. This Probe Body is then coupled with a 4 mm Probe Head. When used together, this first probe purchase is, effectively, an HFXY probe. But it's not just a quadruple resonance probe. In fact, it can also be a true HX, FX, HXY or FXY probe. All modes provide full sensitivity of that operating mode, because there are no compromises; the other channels (e.g., FY) are fully disconnected from the circuit when in simpler RF configurations.

ONE PROBE / MULTIPLE SPINNING MODULES

While this is a very full-featured and powerful probe, there is no way to exactly anticipate your needs a year or two later. With a Phoenix NMR probe design though, that's not a problem. Instead of purchasing another complete probe (i.e. both the Body and the Head), you can simply purchase a new Probe Head to address future needs.

Exchange probe heads in your lab using one small screwdriver, and be ready for an entirely new suite of experiments, with no sacrifice in spinning, RF, or VT performance, ***in less than 30 minutes****.*

For example, how about a 1.6 mm HXY + Lock Probe Head? Or maybe you need a single channel static 2.5mm probe? With PhoenixNMR's probe design, your science needs dictate when and what you add in the future. By only having to purchase a new Probe Head, you can perform more experimentation without busting your budget. Now, that's exciting!

AVAILABLE PROBE FEATURES:

Option	400 MHz	500 MHz	600 MHz	700 MHz	800 MHz	900 MHz
HXY, FXY	✓	✓	✓	✓	✓	✓
HFXY	✓	✓	✓	✓	✓	✓
^{2}H LOCK	✓	✓	✓	✓	✓	ASK
LOW GAMMA	✓	✓	✓	✓	✓	✓
1.2 mm	✓	✓	✓	✓	✓	✓
1.6 mm	✓	✓	✓	✓	✓	✓
2.5 mm	✓	✓	✓	✓	✓	✓
3.2 mm	✓	✓	✓	✓	✓	ASK
4, 5, 6 mm	✓	✓	✓	ASK	ASK	ASK
OTHER ROTOR SIZE/STYLE	ASK	ASK	ASK	ASK	ASK	ASK
STATIC	✓	✓	✓	✓	✓	✓
STANDARD VT RANGE	Standard VT range is - 125°C to +125°C on most modules; - 30°C to +50°C for the 1.2 mm MAS module; and - 150°C to +175°C for the static module.					

SOLIDS TEST SAMPLE KITS

PhoenixNMR offers sample kits in all rotor sizes. Calibrate pulse widths, set magic angle, measure sensitivity, and check lineshape. They are a great way to validate your system and can be used in troubleshooting whether there is a system issue, a problem with a sample, or the probe. If your probe has a deuterium lock channel, we can supply a D_2O rotor utilizing our BioSolids sample spacers. A silicone powder sample allows rapid, initial shimming on its ^{1}H signal to speed setting final lineshape on ^{13}C.

TEST SAMPLES

- Potassium Bromide - Magic Angle
- Adamantane -^{1}H, ^{13}C pw90 and ^{13}C lineshape
- ^{15}N labeled Glycine - ^{15}N pw90, ^{13}C sensitivity for 1.6 mm
- Hexamethylbenzene - ^{13}C sensitivity for 3.2 mm and larger
- Sodiumhexafluorophosphate - ^{31}P, ^{19}F pw90
- Silicone Powder - ^{1}H shimming (much faster)
- D_2O - ^{2}H pw90

BIOSOLIDS SAMPLE PACKING

PhoenixNMR now offers BioSolids sample spacers and centrifuge sample packing tools for 1.2 mm, 1.6 mm, 2.5 mm, 3.2 mm, and 4.0 mm rotor sizes. These tools along with the molded silicone spacers make it easy to efficiently transfer your pelleted sample from 200µ L ultracentrifuge tubes into a ready to use rotor that will keep your sample hydrated. If you are interested in spacers and tools for a different rotor size, we would be happy to consider your request.

SOLIDS AND BIOSOLIDS SAMPLE ACCESSORIES:

	1.2 mm (1 µL)	1.6 mm (8 µL)	2.5 mm (20 µL)	3.2 mm (22 µL)	3.2 mm (36 µL)	4.0 mm (46 µL)
BioSolids Sample Spacer Kit (10 discs, 10 spacers, 5 top caps, Set Tool)	✓	✓	✓	✓	✓	**ASK**
BioSolids Packing Tools w/o Solids Tools (Spacer Kit, Centrifuge Tool, Balance)	✓	✓	✓	✓	✓	**ASK**
BioSolids Packing Tools (Includes Tools and Spacer Kit)	✓	✓	✓	✓	✓	**ASK**
Solids Test Sample Kits	✓	✓	✓	✓		✓
Deuteruim Rotor		✓				
Proton Shimming Rotor	✓	✓	✓	✓	✓	✓

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