

# TAKING PROBE DESIGN TO NEW HEIGHTS.

Phoenix NMR is proud to introduce a highly innovative line of Solid State NMR probes packed with benefits designed to keep your focus on your science, not on your instrumentation. From features that eliminate condensation and frost build-up when operating at sample temperatures below room temperature, to a customer-facing modular probe design that allows greater flexibility of usage 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 Base and a Probe Head.

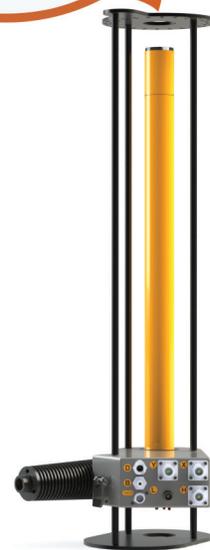
The Probe Base houses all elements common to every PhoenixNMR probe, including:

- 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

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
- Spin speed fiber optics
- The spinning module
- Lock channel tuning elements
- Variable temperature isolation shells

When a Phoenix NMR Probe Base 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 Base 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 complete 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.



Let us give you an example scenario to make things clear. Imagine that your first probe purchase included a Probe Base with a lock channel add-on and simultaneous H and F high band tuning. This Probe Base is then coupled with a 4mm 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 be a true HX, HXY, FXY, or HFXY Probe. All modes enjoy their full signal noise capability, because there are no compromises, the other channels (FY) are fully disconnected from the circuit when in simpler modes.

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 at all. With a Phoenix NMR probe, instead of purchasing another complete probe (i.e. both the Base and the Head), you can simply purchase a new Probe Head to address future needs. For example, how about a 1.6mm HXY +Lock Probe Head? Or maybe you need a single channel static 2.5mm probe? With Phoenix NMR's probe design, your science needs dictate when and what you add in the future, instead of being held hostage by an expensive full probe purchase. By only having to purchase a new Probe Head, you can perform more experimentation without busting your budget. We think that's pretty exciting.

## AVAILABLE PROBE FEATURES:

Option	400 MHz	500 MHz	600 MHz	700 MHz	800 MHz	900 MHz
HXY, FXY	✓	✓	✓	✓	✓	✓
HFX	✓	✓	✓	✓	ASK	ASK
2H LOCK	✓	✓	✓	✓	ASK	ASK
LOW GAMMA	✓	✓	✓	✓	✓	✓
1.6mm	✓	✓	✓	✓	✓	✓
3.2mm	✓	✓	✓	✓	✓	✓
4.5,6mm	✓	✓	✓	ASK	ASK	ASK
OTHER ROTOR SIZE/STYLE	ASK	ASK	ASK	ASK	ASK	ASK
STATIC	✓	✓	✓	✓	✓	✓

## ABOUT PHOENIXNMR

Phoenix NMR is driven by experience and knowledge to design, manufacture, and service the highest-quality Solid State Nuclear Magnetic Resonance probes in the marketplace. As a team and with our partner company Revolution NMR, we have over 120+ years of combined Nuclear Magnetic Resonance instrumentation manufacturing experience. This team of long-time NMR professionals looks forward to earning the continued respect of the community. With insider-understanding of the close-knit NMR community, Phoenix NMR blends knowledge with approachability to deliver state-of-the-art NMR probe technologies and unparalleled customer service. We're proud to facilitate the science of the world's greatest researchers, innovators and scientists.

## MEET THE TEAM



**John Stringer, PhD**  
Chief Operating Officer/  
Chief Technical Officer



**John P. Heinrich, PhD**  
Chief Executive Officer



**Mario Incitti, AAS**  
Director of Production  
& Service



**Chuck Mullen, BSME**  
Director of Research &  
Development

## PARTNER COMPANY: Revolution NMR, LLC

One of Phoenix NMR's key assets is its relationship with Revolution NMR. Since its founding in 2004 by David



Lewis and John Heinrich, Revolution NMR has provided the solid state NMR community with spinning systems and components, unique probes, and probe repair services of the highest quality. Revolution will provide spinning systems and machined parts for Phoenix NMR and will complement Phoenix's capabilities by providing fabrication of non-standard probes and repair of older Varian and Chemagnetics probes along with spinning systems and components.



**David Lewis**  
General Manager



**Ed Twehous**  
Probe Production Manager

**PHOENIX**  **NMR**

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