VERSATILE NMR SYSTEMS FOR VARIABLE-FIELD NMR RELAXOMETRY AND FT NMR SPECTROSCOPY

- FT-NMR
- Variable field T1/T2 relaxometry
- Cryogen-free magnet systems
- General purpose latest technology
- NMR Digital console

APPLICATIONS:

- Chemical reaction monitoring
- Process control
- Quality Assurance

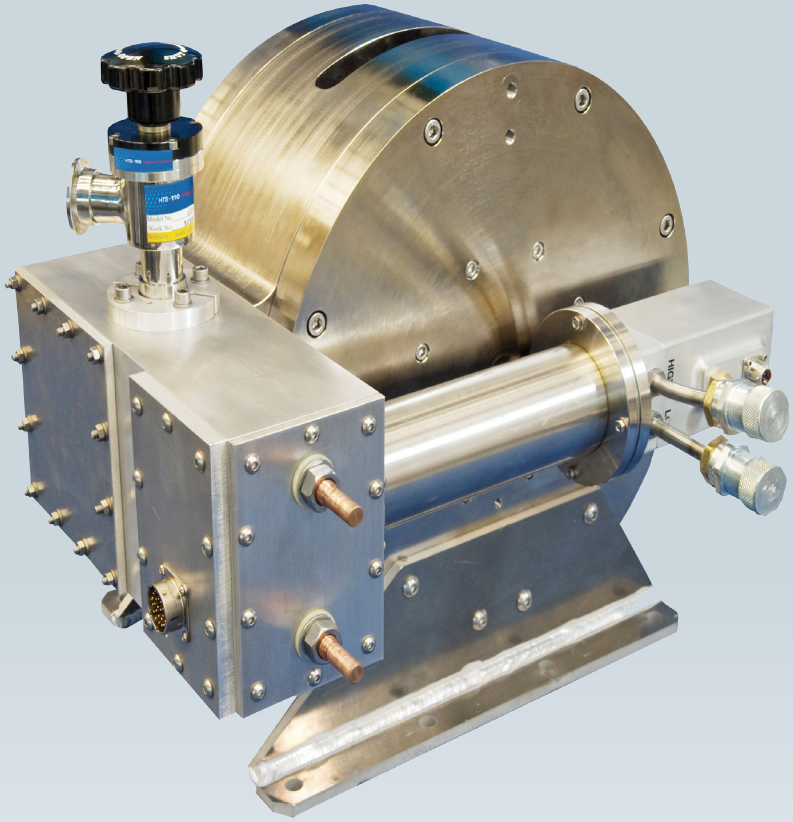
INDUSTRIES:

- Pharmaceuticals
- Petrochemicals
- Food and Beverage
- Research

HTS-110
a SCOTT company

STELAR

OVERVIEW



HTS-110 NMR MAGNETS

HTS NMR magnets provide versatility without cryogens, utilising standard cryo-refrigerators. HTS-110's passively shielded magnets can be turned on and off as required, and the entire system can be redeployed to different locations as needed. The magnet can be placed up to 10 m from the refrigerator compressor and power supply. HTS-110 NMR magnets are currently available from 125 MHz to 200 MHz.

BASIC SPECIFICATIONS

- Transverse field (dipole) layout
- Removeable probe cassette
- Integrated e-shims and shim power supply
- Room temperature cassette slot 14 x 120 mm
- Magnet mass ~250 kg
- Magnet footprint 450 x 650 mm
- Field homogeneity: <1 ppm
- 5 gauss line <1 m from magnet isocentre

STELAR MR ANALYST SPECTROMETER

MR Analyst is a broadband fully digital NMR console.

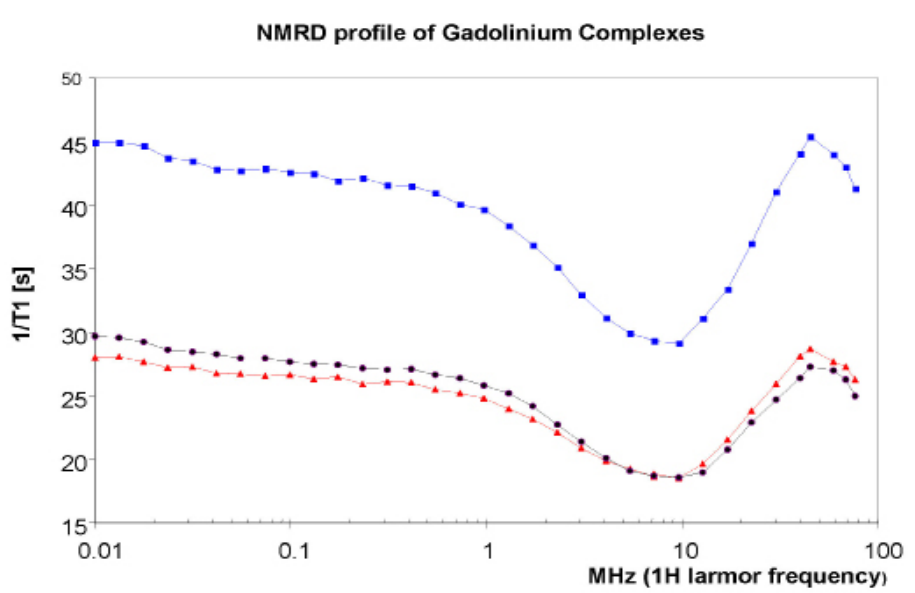
The breadth of the integrated NMR functions allows an unequalled versatility in system and NMR experiment configuration. The high-performance instrument is suited for most NMR applications including High Resolution Spectroscopy, NMR Relaxometry, Field Cycling NMR and NQR.

BASIC SPECIFICATIONS

- NMR frequency range: 0-300MHz
- 4 independant transmitter channels for multi-dimensional experiments
- 1 Wide Band receiver channel (up to 160 MHz) in real direct-detection
- 1 Hi-Resolution receiver channel wit 5 MHz bandwidth up to 300 MHz
- Parallel array configuration ready for multi-channel applications
- Broadband, fully digital NMR lock system for magnet system stabilzation (Spectroscopy Option)
- Linux or Windows Software package
- USB control interface
- 550 x 550 x 250mm

HIGH FIELD RELAXOMETRY: NMRD PROFILES FOR CHARACTERIZATION OF MATERIALS

The Field Cycling Relaxometer is a particular NMR instrument designed to measure the field dependence of NMR spin-lattice and spin-spin relaxation time T1 and T2 (NMRD profiles), from earth field to a maximum operating magnetic field of 4.7 Tesla (200 MHz 1H Larmor frequency).



Field Cycling NMR is increasingly used for the characterization of materials as NMRD (Nuclear Magnetic Relaxation Dispersion) provides a wide spectrum of correlation times and dynamic models much more complex than what might appear from relaxation studies carried out at high fields and fixed frequencies. NMRD has been used in characterization of new MRI contrast agents optimized for new higher-field MRI systems.

Other use of NMRD in materials science include characterization of:

- Polymers
- Solid BSA
- Novel nanostructured materials

In-line FT-NMR: Near real-time monitoring of chemical conversion processes

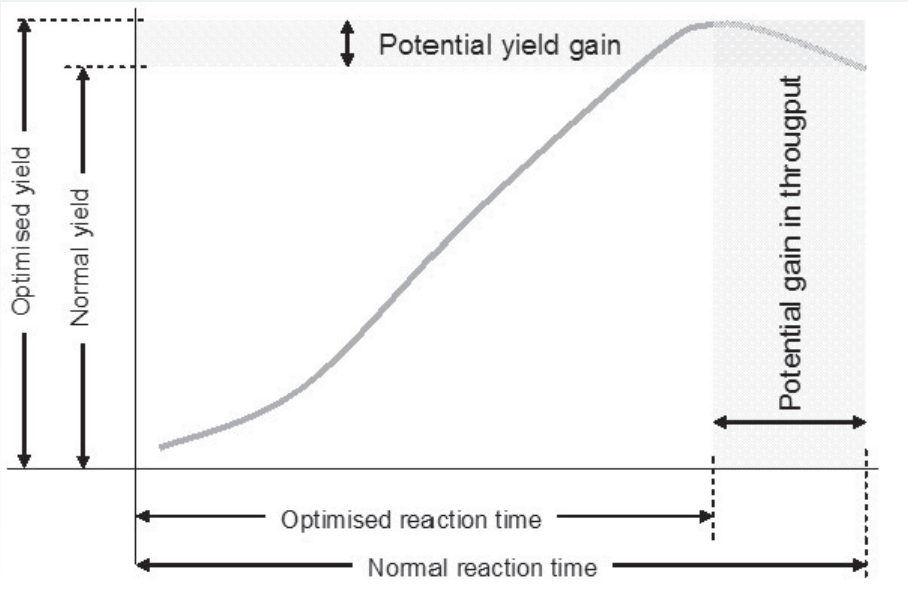
HTS-110 cryogen-free NMR systems are robust and compact, making it possible to use NMR in-line for reaction monitoring. Variability in feedstock composition and reaction conditions result in reduced yield and extended reaction time to ensure reactions are completed. The data provided by in-line FT-NMR allows reactions to be curtailed at the optimum point, resulting in increased plant capacity and maximised yield.

Besides a potential high return on investment, in-line reaction monitoring also contributes to more consistent product composition and reduced variable costs in production.

In biofuels for example, the NMR system only needs to be used near the completion of the transesterification process, so it is available for material analysis at other points in the process.

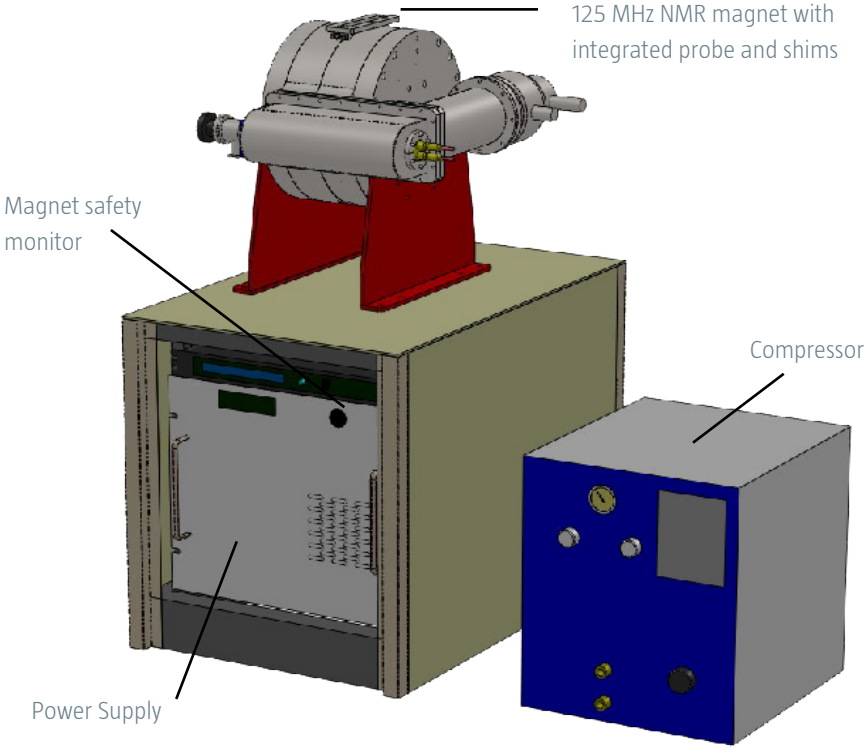
Samples can be inserted manually or using commercially available robotic sample handling systems.

HTS NMR magnets are robust and can be moved with minimal precautions. Thus they can be easily moved to other parts of a plant or used in a mobile laboratory.



125 MHz SYSTEM OVERVIEW

HTS-110



SYSTEMS INCLUDE

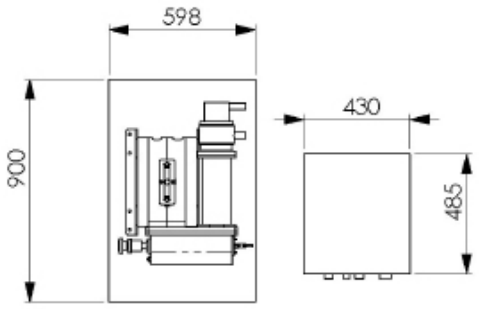
- Cryogen-free HTS NMR magnet with integrated cryocooler cold-head
- Includes H1 probe suitable for NMR sample tubes up to 7mm
- High-stability power supply
- Magnet protection electronics
- Integrated electric shims and shim power supply
- 1 year warranty

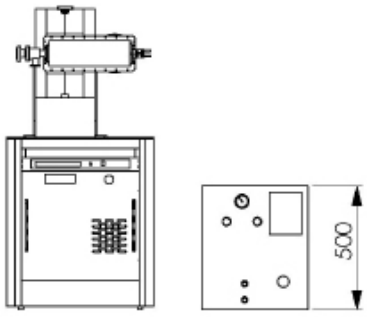
OPTIONS

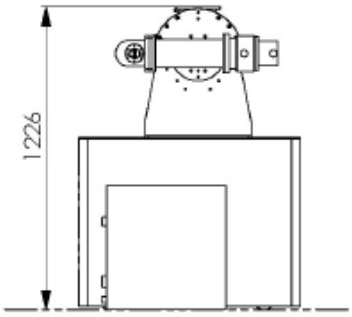
- Variable temperture sample controller
- Extended warranty option available
- Cassette-style F19, P31 probes
- Service plan options available

SYSTEM REQUIREMENTS

- <10 Litres water per minute @<35°C
- <7 kW total system usage
- Preventative maintenance on cryocooler every 13,000 hours







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