

PRODUCT: **BRUKER 4.0 mm double resonance (H/X) 400 MHz CP-MAS SB VTN probe**

DESCRIPTION: A top-loading double resonance (H/X) magic angle spinning probe for solid state NMR with 400 MHz standard bore magnets. The probe possesses an X channel that is tuneable from 31P to 15N. The high frequency side of the probe comprises 1H high power decoupling. This requires an external 1H band pass filter. An MAS pneumatic control unit is required for operation of sample spinning. Rotation frequencies are up to 15 kHz. Sample volume amounts to 92 µl with an active sample volume of 50 µl. The VT type of the probe is VTN, i.e. the bearing gas channel is heated or cooled to establish the sample temperature. Included are three rotors with two PCTFE caps and one polyimide cap each, sample packing and cap removal tools.
Equipped with Automatica Tuning & matching and MAS setting
An ideal probe for many magic angle spinning applications. It offers sufficient spinning speed and adequate 1H decoupling power.

ACCESSORIES: not included, must be ordered separately:

AH0221	transfersystem for 4 mm rotors
AH0040	heat exchanger for low temperature experiments
W00311	26L dewar for liquid nitrogen
AH0026	BRUKER cooling unit to provide VT gas at approx. -80°C

ORDER INFORMATION:

PH0702_D/NPH	SB 4.0 mm double resonance (H/X) CP-MAS probe
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BRUKER 4.0 mm double resonance (H/X) 400 MHz CP-MAS SB VTN probe			
Specifications		Advised amplifier	
90° pulse for short pulses [μs]			
31P	≤ 2.5	300W	
13C	≤ 3.0	500W	
15N	≤ 4.0	500W	
RF field for up to 10 ms in (CP) [kHz]			
31P	75	300W	
13C	65	500W	
15N	55	500W	
RF field for 1H decoupling up to 50 ms			
[kHz]	100	300W	
Sensitivity ¹⁾			
13C	300		
15N	60		
¹³C line width [Hz]²⁾			
< 7 Hz			
Temperature range [°C]³⁾			
-50/+120 ⁴⁾			
Active sample volume [μL]			
50			
Max spinning frequency [kHz]			
15			
Tuning ranges:⁵⁾			
H channel	1H		
X channel	31P to 15N		
PH0702_D/NPH 400 MHz			

¹⁾ Sample used for sensitivity test is α-glycine, packed according to active sample volumes and using specified RF fields for CP and decoupling. Parameters for 13C (values for 15N in brackets): 2 ms (4 ms) Hartmann-Hahn contact optimised for α-13C (amino-15N), 300 ppm (400 ppm) sweep width, 2K data points, optimised SPINAL-64 decoupling, no LB; given S/N values can only be achieved with specified RF fields; **ns=64**, 5 kHz spinning

²⁾ Line width determined on 13C signal of adamantane

³⁾ Specified temperature range is the operational temperature range of the probe. The shim system temperature must not be allowed to exceed +80°C. At low temperatures, precautions must be taken to prevent the magnet dewar O-rings from freezing. The actual sample temperature depends on spinning conditions.

⁴⁾ Dry N2 gas must be used below 0°C

⁵⁾ Full X range covered by external switch

Performance is specified for BRUKER Avance™ III HD spectrometers with high power RF amplifiers. Q1 2014/STE, Bruker BioSpin GmbH. Technical data and specifications subject to change without notice

