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NMR Product Highlights

WILMAD

www.wilmad.com

ATS
SCIENTIFIC PRODUCTS FTS

AirJet™ XR

Sample Cooler for Liquid- and Solid-State NMR

Features

- Control temperature from -90°C to +100°C
- Flow rate of up to 2 scfm for solid state NMR samples
- ±0.1°C temperature stability
- Digital Temperature Control
- Choice of multiple non-magnetic delivery line lengths
- CE compliant

FTS Systems AirJet™ XR sample coolers provide sample temperature control for X-ray diffraction, NMR, EPR, and other applications. These mechanically-refrigerated systems control the temperature of a supplied gas stream to between -90°C and +100°C. An optional air dryer allows for the use of a house-compressed air supply. The unique temperature controller provides precise regulation of heat input to produce a temperature stability of ±0.1°C. The non-magnetic variable length flexible delivery lines allow you to position the air stream for proper sample temperature control.

ATS
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Wilmad Thin Walled High Throughput NMR Tubes

Wilmad Thin Walled High Throughput NMR Tubes have an average camber of 60 microns to guarantee spectral quality for small molecule (MW<250) samples up to 600 MHz.

- Designed for routine use in most low to mid field NMR spectrometers
- One of the best O.D. tolerances in the industry
- Made from ASTM E438 Type 1 Class B glass
- 100% inspected for surface defects and physical dimension to ensure the success of your experiments

Note: Do not use for experiments involving cooling, heating, biological sample, multi-dimension, multi-nuclei, or DNP

Wilmad High Throughput NMR Tubes					
Catalog No.	**O.D.**	**Length**	**MHz Rating**	**Wall Thickness**	**Pack Size**
WG-3000-3-50	3.0±0.03mm	3"	High Throughput	0.27mm	50
WG-3000-4-50	3.0±0.03mm	4"	High Throughput	0.27mm	50
WG-3000-4	3.0±0.03mm	4"	High Throughput	0.27mm	100
WG-3000-7-50	3.0±0.03mm	7"	High Throughput	0.27mm	50
WG-3000-8-50	3.0±0.03mm	8"	High Throughput	0.27mm	50
WG-1000-4	4.94665±0.01905mm	4"	High Throughput	0.43mm	100
WG-1000-7-25	4.94665±0.01905mm	7"	High Throughput	0.43mm	25
WG-1000-7-50	4.94665±0.01905mm	7"	High Throughput	0.43mm	50
WG-1000-7	4.94665±0.01905mm	7"	High Throughput	0.43mm	100
WG-1000-8-50	4.94665±0.01905mm	8"	High Throughput	0.43mm	50
WG-1000-8	4.94665±0.01905mm	8"	High Throughput	0.43mm	100
WG-4000-7	9.944±0.025mm	7"	High Throughput	0.60mm	100

Precision NMR Tubes

To maximize SNR, Precision NMR Tubes have minimal paramagnetic impurities that would impact shimming.

- Can be operated safely at temperatures up to 230˚ C, and within a temperature step of 120˚ C
- Ideal for experiments requiring critical shimming quality (high/ultrahigh field, multi-dimensional, multi-nuclei, DNP experiments and studies involving biological samples)
- Includes disposable cap

Wilmad 5mm O.D. Thin Walled Precision NMR Tubes							
Catalog No.	**MHz Rating**	**Length**	**O.D.**	**Concentricity**	**Camber**	**I.D.**	**Wall Thickness**
542-PP-7	1000	7"	4.9635±0.0065mm	2.5 µm	3.8 µm	4.2065±0.0065mm	0.38mm
541-PP-7	800	7"	4.9635±0.0065mm	3.8 µm	3.8 µm	4.2065±0.0065mm	0.38mm
535-PP-7	600	7"	4.9635±0.0065mm	13 µm	6 µm	4.2065±0.0065mm	0.38mm
527-PP-7	400	7"	4.9635±0.0065mm	25 µm	25 µm	4.2065±0.0065mm	0.38mm
507-PP-7	300	7"	4.9635±0.0065mm	51 µm	25 µm	4.2065±0.0065mm	0.38mm
506-PP-7	200	7"	4.9635±0.0065mm	51 µm	51 µm	4.2065±0.0065mm	0.38mm

Wilmad SampleJet NMR Tubes

Introducing Wilmad High-Throughput NMR tubes, now featuring genuine Bruker® SampleJet® caps. Seamlessly integrate industry-standard Wilmad NMR tubes into your SampleJet® workflow, enabling convenient handling by lab-automation devices pre- or post-NMR measurement. Elevate your workflow efficiency with this innovative solution.

- Available in 4 & 7 inch lengths
- Rated for up to 600 MHz

Note: Caps are without code and should not be used in conjunction with ceramic turbines.

Wilmad Bruker® SampleJet® NMR Tubes						
Catalog No.	**MHz Rating**	**O.D.**	**Length**	**Wall Thickness**	**Camber**	**Pack Qty**
WG-1000-4-SJ	600	4.947±0.019mm	103.5mm	0.43mm	60 µm	100
WG-1000-7-SJ	600	4.947±0.019mm	178mm	0.43mm	60 µm	100
WG-3000-4-SJ	600	3.0mm	103.5mm	0.43mm	60 µm	100
WG-3000-7-SJ	600	3.0mm	178mm	0.43mm	60 µm	100

Wilmad Benchtop Spectrometer NMR Tubes

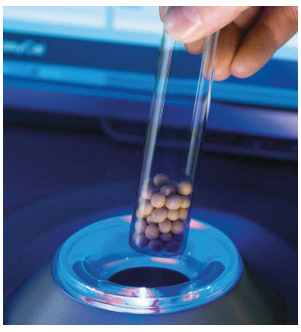
Ideal for use with 43, 60, & 80MHz manual sample loading benchtop NMR spectrometers, Wilmad Benchtop NMR Tubes have been tested in the most popular benchtop spectrometers to assure performance and give you confidence in purchasing consumables for your instrument.

- 5mm O.D. tubes available in 7" or 8" lengths
- Packaging allows for easy tube access and storage
- Attractively priced for a high-throughput laboratory environment
- Type 1, Class B Borosilicate glass construction with disposable caps

Note: Not for use with high-field instruments or spinning experiments

Wilmad Benchtop Spectrometer NMR Tubes				
Catalog No.	**Length**	**O.D.**	**Wall Thickness**	**Package Qty.**
WG-BTNMR-7	7"	5mm	0.43mm	150
WG-BTNMR-8	8"	5mm	0.43mm	150

Time Domain NMR Tubes



Time Domain Benchtop NMR spectrometers serve many industries as a cost effective NMR solution. Wilmad has a corresponding line of tubes to meet these needs.

TD NMR Tubes | Thin Walled | ASTM Type 1, Class B Borosilicate Glass				
Catalog No.	**O.D.**	**Length**	**Bottom**	**Package Qty.**
WG-4001-7	10mm	7"	Flat	100

Stem Coaxial Small Volume NMR Insert

The most versatile and reliable coaxial system available for NMR experiments is the Wilmad Stem Coaxial Small Volume NMR Inserts.

- General applications include small volume NMR, external referencing, external locking and magnetic susceptibility determination
- Manufactured from ASTM Type 1 class A glass, ideal for variable temperature studies
- Outer tube must be ordered separately depending on magnetic field strength

Stem Coaxial Small Volume NMR Insert						
Catalog No.	**Fits Outer Tube with O.D.**	**Stem Height**	**Stem O.D.**	**Inner Capacity**	**Outer Capacity**	**Use with**
WGS-5BL*	5mm	50mm	2mm	60 µL	530 µL	Precision NMR Tubes
WGS-5BL-SP*	5mm	50mm	3.3mm	220 µL	260 µL	Precision NMR Tubes

***Note:** Outer tube sold separately

Coaxial Small Volume NMR Insert

- Switch between three unique sample/reference solution ratios during external referencing experiments
- Ideal for variable temperature experiments since material remains the same between the outer tube, inner tube, and spacer
- Insert and outer tube are fused together at the bottom

Complete Sets					
Catalog No.	**Outer Tube O.D.**	**Outer Tube I.D.**	**Inner Tube O.D.**	**Inner Tube I.D.**	**MHz Rating**
517-Complete	4.97mm	4.20mm	3.30mm	2.34mm	600
518-Complete	4.97mm	4.20mm	2.97mm	1.96mm	600
519-Complete	4.97mm	4.20mm	2.52mm	1.50mm	600

Bruker® MicroProbe/MicroCryoProbe NMR Tubes

Wilmad has been manufacturing small volume NMR Tubes with the highest quality in the industry to meet the demand in small volume NMR. Our Ultra-High Field MicroProbe Tube (>600 MHz) is 10 times more precise in terms of camber and concentricity than instrument manufacturers' stock tubes. This technological advancement helps increase the shimming quality and SNR. Note: The O.D. of the upper section is 5.0mm.

Bruker® MicroProbe/MicroCryoProbe NMR Tubes							
Catalog No.	**MHz Rating**	**Probe Type**	**Stem Length**	**Stem O.D.**	**Stem I.D.**	**Stem Volume**	**Overall Length**
620-1A	500	Bruker® 1.0 mm MicroProbe	50mm	1.00mm	0.80mm	25 µL	8"
620-1B	500	Bruker® 1.7 mm MicroCryoProbe	50mm	1.70mm	1.30mm	66 µL	8"
620-1C	500	Bruker® 3.0/2.5 mm CryoProbe	50mm	2.00mm	1.60mm	100 µL	8"
520-1A	800	Bruker® 3.0/2.5 mm MicroProbe	50mm	2.50mm	2.16mm	1.83 µL	8"
620-1E	500	Bruker® 3.0 mm CryoProbe	50mm	2.95mm	2.41mm	228 µL	8"
620-1E-7	500	Bruker® 3.0 mm CryoProbe	50mm	2.95mm	2.41mm	228 µL	8"

Shigemi® Susceptibility Matched NMR Tubes

Experience the unparalleled quality of Shigemi® susceptibility matched NMR tubes, crafted from a specialized hard glass renowned for its exceptional chemical durability. Each tube is \magnetic susceptibility matched to its designated solvent, ensuring precise identification and optimal performance.
This NMR tube features an outer tube and insert designed for heightened sensitivity. Elevate your NMR experiments with unmatched precision and reliability.

Note: If you do not see the matched solvent Shigemi® tube you require, please contact us at wilmad.com

Shigemi® Susceptibility Matched NMR Tubes

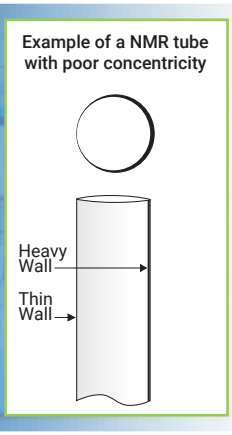
Catalog No.	Outer Tube O.D.	Insert O.D.	Insert Length	Outer Tube Length	Bottom Length	Matched Solvent	Compatibility
CMS-005B	5.0mm	4.1mm	190mm	180mm	8mm	Chloroform-d	Bruker®
CMS-005J	5.0mm	4.1mm	190mm	180mm	12mm		JEOL®
CMS-010B	10.0mm	8.9mm	200mm	190mm	8mm		Bruker®
MMS-005B	5.0mm	4.1mm	190mm	180mm	8mm	Methanol-d_4	Bruker®
MMS-005J	5.0mm	4.1mm	190mm	180mm	12mm		JEOL®
MMS-010B	10.0mm	8.9mm	200mm	190mm	8mm		Bruker®
DMS-005B	5.0mm	4.1mm	190mm	180mm	8mm	DMSO-d_6	Bruker®
DMS-005J	5.0mm	4.1mm	190mm	180mm	12mm		JEOL®
DMS-010B	10.0mm	8.9mm	200mm	190mm	8mm		Bruker®
BMS-005B	5.0mm	4.1mm	190mm	180mm	8mm	Deuterium Oxide	Bruker®
BMS-005J	5.0mm	4.1mm	190mm	180mm	12mm		JEOL®
BMS-010B	10.0mm	8.9mm	200mm	190mm	8mm		Bruker®

Fundamentals of an NMR Tube - Part 1

Concentricity

A measurement of variation in the radial centers, measured at the inner and outer walls.

Concentricity can be thought of as the degree to which the cylinders defined by the inner and outer surfaces of the tube are parallel. If the inner surface deviates and becomes closer to the outer surface that will cause one portion of the tube to have a smaller wall thickness than the other.



Screw-Cap Tubes

The Screw-Cap Tube is commonly used in sample degasification. The vacuum quality that it can maintain is >10^{-4} torr. For better vacuum, please check our Pressure/Vacuum Tube and Quick Pressure Valve Tube.

Each Screw-Cap Tube comes with one PTFE/Silicone Septum.

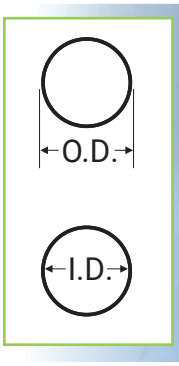
Screw-Cap Sample Tube

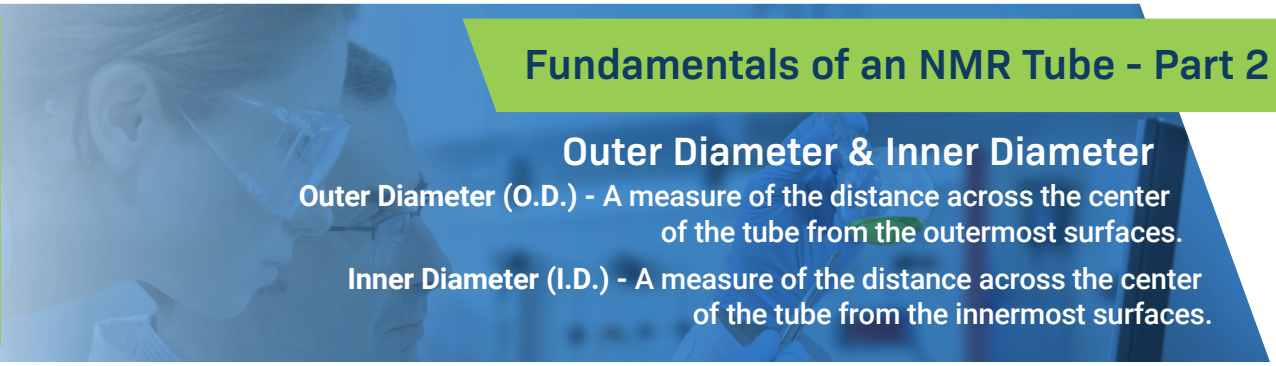
Catalog No.	MHz Rating	O.D.	Length
335-TR-7	600	3mm	7”
335-TR-8	600	3mm	8”
328-TR-7	500	3mm	7”
328-TR-8	500	3mm	8”
328-TR-9	500	3mm	9”
307-TR-7	300	3mm	7”
535-TR-7	600	5mm	7”
535-TR-8	600	5mm	8”
535-TR-9	600	5mm	9”
528-TR-7	500	5mm	7”
528-TR-8	500	5mm	8”
528-TR-9	500	5mm	9”
507-TR-7	300	5mm	7”
507-TR-8	300	5mm	8”
507-TR-9	300	5mm	9”
513-7TRA-7	500	10mm	7”
513-7TRA-8	500	10mm	8”
513-7TRA-9	500	10mm	9”

Screw-Cap Sample Tube Replacement Parts

Catalog No.	Description	Fits Tube with O.D.	Package Qty.
TR-LR-01	PTFE/rubber septum	4 and 5mm	36
TR-LR-05	PTFE/rubber septum	10mm	36
TR-LR-07	PTFE/rubber septum	12, 13, 15, 16, and 18mm	36
TR-LS-01	PTFE/silicone septum	4 and 5mm	36
TR-LS-03	PTFE/silicone septum	7.5 and 8mm	36
TR-LS-05	PTFE/silicone septum	10mm	36
TR-LS-07	PTFE/silicone septum[2]	12, 13, 15, 16, and 18mm	36
TR-SC-01	Solid Cap	4 and 5mm	12
TR-SC-05	Solid Cap	10mm	12
TR-SC-07	Solid Cap	12, 13, 15, 16, and 18mm	12
TR-SC-09	Solid Cap	20mm	12
TR-OC-01	Open Cap	4 and 5mm	12
TR-OC-03	Open Cap	7.5 and 8mm	12
TR-OC-05	Open Cap	10mm	12
TR-OC-07	Open Cap	12, 13, 15, 16, and 18mm	12

Note: PTFE/ Rubber septums are inert to most solvents and many corrosive materials





Fundamentals of an NMR Tube - Part 2

Outer Diameter & Inner Diameter

Outer Diameter (O.D.) - A measure of the distance across the center of the tube from the outermost surfaces.

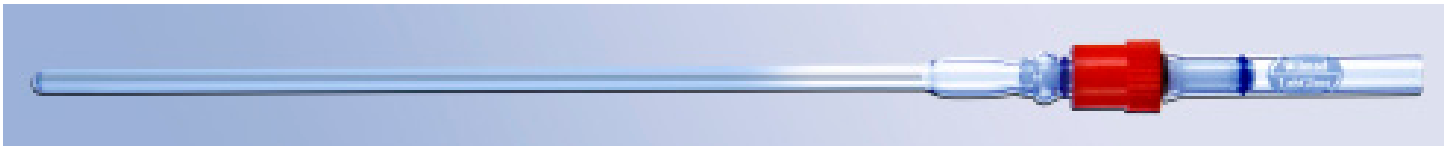
Inner Diameter (I.D.) - A measure of the distance across the center of the tube from the innermost surfaces.

Low Pressure/Vacuum Tubes

Wilmad's Low Pressure/Vacuum (LPV) tube is ideal for anaerobic and gas-tight NMR experiments, and offers a convenient flame-free sealing solution for air sensitive or volatile liquid samples.

- Robust sealing system allows pressure build-up inside the sample
- Greaseless PTFE piston provides a 100% contamination-free seal
- Redesigned with a 4X larger sealing surface; eliminates leaks and greatly increases lifetime when compared to traditional J. Young tubes
- Axial symmetric design guarantees application in spinning experiments
- Due to the nature of glass, Extreme Caution should be exercised when using at elevated or reduced pressures since a tiny scratch on the glass surface would significantly lower the tensile strength. Adequate safety shielding should always be used when working in these conditions.

Note: other sizes and MHz ratings are available



Low Pressure/Vacuum Tube							
Catalog No.	**MHz Rating**	**Length**	**O.D.**	**Wall Thickness**	**Concentricity**	**Camber**	**Glass Type**
507-LPV-7	300	7”	5mm	0.38mm	51µm	25µm	Borosilicate
513-7LPV-7	500	7”	10mm	0.46mm	38µm	13µm	Borosilicate
535-LPV-7	600	7"	5mm	0.38mm	13 µm	6 µm	Borosilicate
535-LPV-8	600	8"	5mm	0.38mm	13 µm	6 µm	Borosilicate
528-LPV-7	500	7"	5mm	0.38mm	25 µm	13 µm	Borosilicate
528-LPV-7QTZ	500	7"	5mm	0.38mm	25 µm	13 µm	Quartz
528-LPV-8	500	8"	5mm	0.38mm	25 µm	13 µm	Borosilicate
522-LPV-7	400	7"	5mm	1.40mm	51 µm	51 µm	Borosilicate
524-LPV-7	400	7"	5mm	0.77mm	76 µm	51 µm	Borosilicate

Low Pressure/Vacuum Tube for Autosamplers						
Catalog No.	**MHz Rating**	**Bottom NMR Tube Length**	**Length after removing the Vacuum Adapter**	**Concentricity**	**Camber**	**Glass Type**
535-LPV-200M	600	137 ± 1mm	199 ± 1mm	13 µm	6 µm	Borosilicate
528-LPV-200M	500	137 ± 1mm	199 ± 1mm	25 µm	13 µm	Borosilicate

Need a custom NMR Tube?

Wilmad's experienced glass engineers are happy to help with your custom NMR tube concepts. Their ability to turn your complex designs into world class finished goods is what they have been doing for 30+ years.

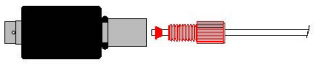
Contact us today to discuss your custom NMR needs.
https://bit.ly/48OJGIK

Quick Pressure Vacuum Tube

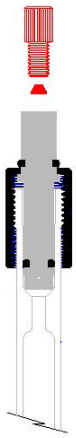
Wilmad's Quick Pressure Valve Sample Tubes are specially designed to simplify the work of NMR studies for catalysis, gas-liquid phase reactions, air sensitive samples and elevated temperature studies using low boiling point solvents.

- Easy to operate - one turn to open, one to close
- Larger opening for convenient sample addition
- Lightweight, concentric design for better performance
- Offered with Wilmad Precision Tubes - thin, medium and heavy wall
- Choice of Viton® or Kalrez® O-ring for different applications
- Adapters available for both 1/16" and 1/8" tubing

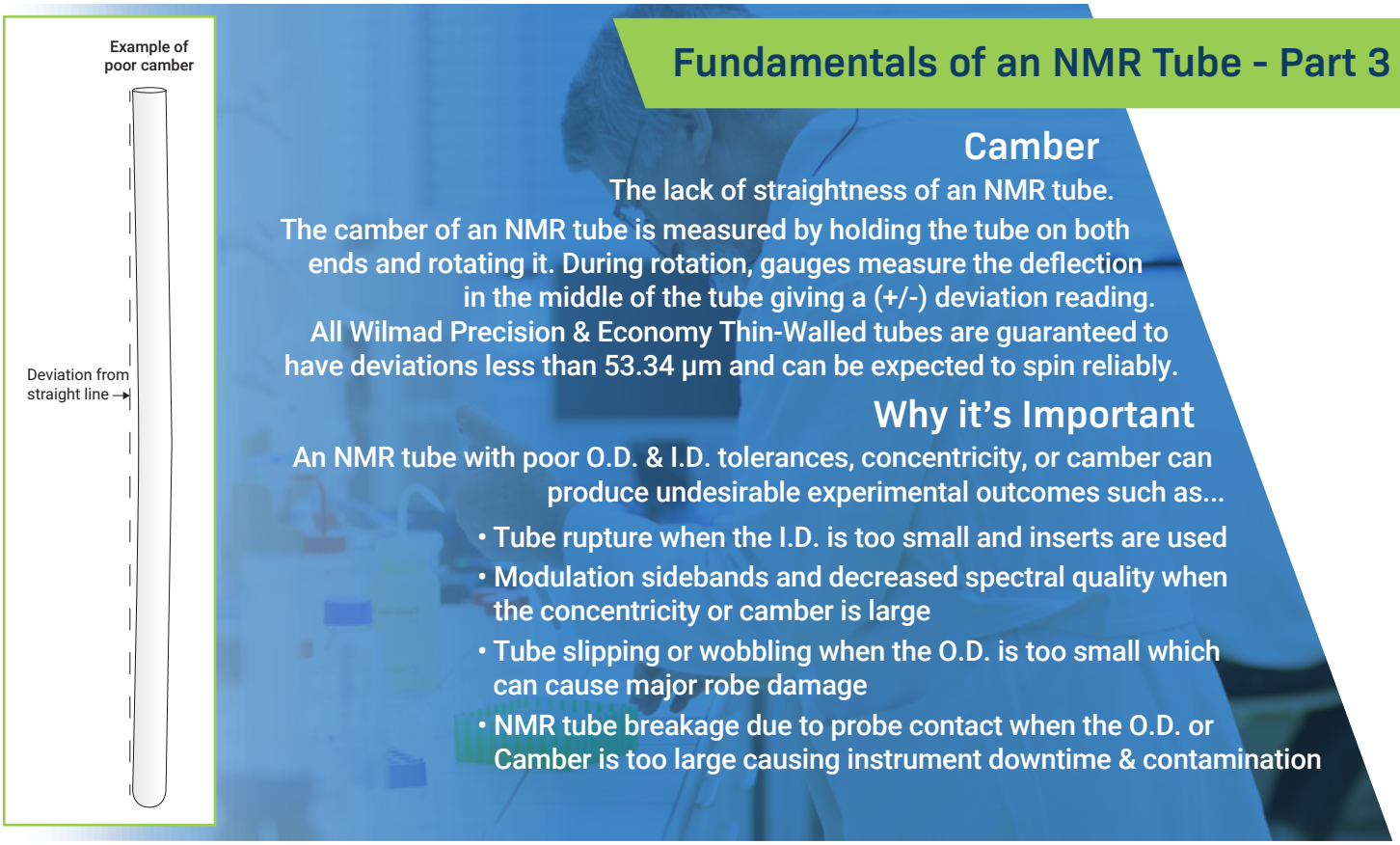
Basic Tubing Connection



Slide the Nut (1) and Ferrule (2) onto the 1/16" diameter tubing. Make sure the end of the tubing extends past the end of the ferrule as shown. Screw the assembly into the threaded port in the end of the valve stem until finger tight.



Quick Pressure Valve (QPV) Tubes (Parts for Basic Tubing Connection Included)						
Catalog No.	**MHz Rating**	**O.D.**	**Length**	**Wall Thickness**	**Concentricity/ Camber**	**Recommended Max Pressure**
528-QPV-7	500	5mm	7"	0.38mm	25 / 13 µm	100 psi
528-QPV-8	500	5mm	8"	0.38mm	25 / 13 µm	100 psi
522-QPV-7	300	5mm	7"	1.40mm	51 / 51 µm	200 psi
522-QPV-8	300	5mm	8"	1.40mm	51 / 51 µm	200 psi



Fundamentals of an NMR Tube - Part 3

Camber

The lack of straightness of an NMR tube.

The camber of an NMR tube is measured by holding the tube on both ends and rotating it. During rotation, gauges measure the deflection in the middle of the tube giving a (+/-) deviation reading. All Wilmad Precision & Economy Thin-Walled tubes are guaranteed to have deviations less than 53.34 µm and can be expected to spin reliably.

Why it's Important

An NMR tube with poor O.D. & I.D. tolerances, concentricity, or camber can produce undesirable experimental outcomes such as...

- Tube rupture when the I.D. is too small and inserts are used
- Modulation sidebands and decreased spectral quality when the concentricity or camber is large
- Tube slipping or wobbling when the O.D. is too small which can cause major robe damage
- NMR tube breakage due to probe contact when the O.D. or Camber is too large causing instrument downtime & contamination

Disposable NMR Tube Caps

Wilmad's Disposable NMR Tube Caps are made from high quality Polyethylene or Ethylene Vinyl Acetate. Different colors help to track samples.

Note: Please avoid using Wilmad's Disposable NMR Tube Caps when $CDCl_3$ serves as the reference solution as the material(s) could be dissolved. For $CDCl_3$, we recommend PTFE tube caps shown on the next page.

Disposable NMR Tube Caps				
Catalog No.	Fits Tube O.D.	Material	Color	Package Qty.
521-R	1.7mm	Polyethylene	Red	25
521-T	2.0mm	Polyethylene	Red	25
521-U	2.5mm	Polyethylene	Red	25
521-P-100	3.0mm	Polyethylene	Red	100
521-P-1000	3.0mm	Polyethylene	Red	1000
521-G-100	4.0mm	Polyethylene	Blue	100
521-G-1000	4.0mm	Polyethylene	Blue	1000
521-BLK-100	5.0mm	Ethylene Vinyl Acetate	Black	100
521-BLK-1000	5.0mm	Ethylene Vinyl Acetate	Black	1000
521-BLU-100	5.0mm	Ethylene Vinyl Acetate	Blue	100
521-BLU-1000	5.0mm	Ethylene Vinyl Acetate	Blue	1000
521-GRN-100	5.0mm	Ethylene Vinyl Acetate	Green	100
521-GRN-1000	5.0mm	Ethylene Vinyl Acetate	Green	1000
521-ORG-100	5.0mm	Ethylene Vinyl Acetate	Orange	100
521-ORG-1000	5.0mm	Ethylene Vinyl Acetate	Orange	1000
521-PUR-100	5.0mm	Ethylene Vinyl Acetate	Purple	100
521-PUR-1000	5.0mm	Ethylene Vinyl Acetate	Purple	1000
521-RED-100	5.0mm	Ethylene Vinyl Acetate	Red	100
521-RED-1000	5.0mm	Ethylene Vinyl Acetate	Red	1000
521-WHT-100	5.0mm	Ethylene Vinyl Acetate	White	100
521-WHT-1000	5.0mm	Ethylene Vinyl Acetate	White	1000
521-YLW-100	5.0mm	Ethylene Vinyl Acetate	Yellow	100
521-YLW-1000	5.0mm	Ethylene Vinyl Acetate	Yellow	1000
521-PNK-100	5.0mm	Ethylene Vinyl Acetate	Pink	100
521-PNK-1000	5.0mm	Ethylene Vinyl Acetate	Pink	1000
521-AQA-100	5.0mm	Ethylene Vinyl Acetate	Aqua	100
521-AQA-1000	5.0mm	Ethylene Vinyl Acetate	Aqua	1000
521-SKY-100	5.0mm	Ethylene Vinyl Acetate	Sky Blue	100
521-SKY-1000	5.0mm	Ethylene Vinyl Acetate	Sky Blue	1000
521-FUH-100	5.0mm	Ethylene Vinyl Acetate	Fuchsia	100
521-FUH-1000	5.0mm	Ethylene Vinyl Acetate	Fuchsia	1000
521-ASST-100	5.0mm	Ethylene Vinyl Acetate	Assorted	100
521-ASST-1000	5.0mm	Ethylene Vinyl Acetate	Assorted	1000
521-B-100	8.0mm	Polyethylene	Neutral	100
521-B-1000	8.0mm	Polyethylene	Neutral	1000
521-C-100	10.0mm	Polyethylene	Red	100
521-C-1000	10.0mm	Polyethylene	Red	1000
521-C-YLW-100	10.0mm	Polyethylene	Yellow	100
521-C-YLW-1000	10.0mm	Polyethylene	Yellow	1000

NMR Pipettes

Wilmad Sample Transfer NMR Pipettes are designed for easy transfer of liquid samples contained in 5mm OD and larger NMR tubes, long neck volumetric flasks or chromatography columns.

- Manufactured from high quality ASTM Type 1 Class A borosilicate glass
- Resistant to most organic solvents
- Transparency provides easy control of sample loading
- Easily attach a latex bulb (804), sold separately
- Manufactured in a clean room
- Free from organic and inorganic contamination
- Special shaping process ensures a smooth surface to minimize sample loss

Wilmad Long-Tip Sample Transfer NMR Pipettes				
Catalog No.	**Description**	**Length**	**Fits with Tube**	**Package Qty.**
803A	Long Tip Pipette	13.75" Overall	7", 8", 9", 5mm minimum O.D.	100
802	Short Pasteur Pipette	5" tip	5mm minimum O.D.	100
804	Latex Bulb for all Pipettes	—	—	50

Spinner Turbines for Bruker® Spectrometers

Bruker® Room Temperature 5 & 10mm Spinner Turbine

Highlights

- Less probe insert damage due to better insert sample control
- Longer upper barrel stabilizer with 3mm yellow band
- Can be mixed with originals during sample changer operation

Bruker® Variable Temperature 5 & 10mm Spinner Turbines

Highlights in addition to previous

- Far less likely to break than ceramic spinners if dropped on a hard surface
- Weight is comparable to room temperature spinners
- Long life high-temperature top and bottom O-rings

Bruker® Room Temperature 5 & 10mm Spinner Turbines		
Catalog No.	**Application Temperature**	**Description**
STB-5	Ambient	5mm Spinner for Bruker®
STB-5-TACHO	—	Replacement Tacho-Strip
TURBINE-ORING- BLACK	—	Replacement 5mm Viton® O-Ring
STB-10	Ambient	10mm Spinner for Bruker®

Bruker® Variable Temperature 5 & 10mm Spinner Turbines		
Catalog No.	**Application Temperature**	**Description**
B-PEEK-5	-150 to 200° C	5mm PEEK Spinner for Bruker®
B-PEEK-10	-150 to 200° C	10mm PEEK Spinner for Bruker®
B-PEEK-5-O-RING	—	Replacement 5mm Viton® O-Ring
B-PEEK-10-O	—	Replacement 10mm O-Ring

Rotor & Cap for Bruker® & Agilent/Varian® MAS-NMR

MAS-NMR rotor bodies are manufactured from the highest quality Zirconia, Kel-F, Torlon®, & Vespel® providing the ultimate solution for analysis of solid samples.

- MAS rotors and caps are 100% compatible with most solid state NMR spectrometers
- Thoroughly inspected before and after the precision machining process to ensure there are no material irregularities
- Spin testing is performed to only the highest specified spinning speed, assuring performance without overspinning the rotor
- Spinning speeds of up to 12 kHz for 7mm O.D. rotors
- Some caps are fitted with O-rings for improved sealing
- Zirconia rotor body has a strength of 1,000 MPa, greater than Si_3N_4

Note: "DB" is the abbreviation for Bruker® "Double Bearing" style rotor.
"BL" is the abbreviation for Bruker® "Boden Lager" (Bottom Bearing) style rotor.

Rotor & Cap for Bruker® MAS Probe

Catalog No.	For Bruker® MAS Probe	Temperature Range	Description	Material	Remarks
WP-501-2180-SET1	2.5mm	-30 to 70° C	One Rotor, Two Vespel® Caps and Bottoms	Various	V_{max}=35 kHz
WP-501-3180-SET1	3.2mm	-30 to 70° C	One Rotor, Two Vespel® Caps and Bottoms	Various	V_{max}=24 kHz
WP-501-4180-SET-1	4mm	-100 to 200° C	One Rotor, Two Kel-F® Caps, One Torlon® Cap	Various	V_{max}=18 kHz
WP-501-4180-SET-2	4mm	-100 to 200° C	Two Rotors, Four Kel-F® Caps, One Torlon® Cap	Various	V_{max}=18 kHz
WP-501-4180-SET-5	4mm	-100 to 200° C	Five Rotors, Ten Kel-F® Caps and Three Torlon® Caps	Various	V_{max}=18 kHz
WP-501-7180-SET-1	7mm	-100 to 200° C	One Rotor with Two Kel-F® Caps and One Torlon® Cap	Various	
WP-501-7180-SET-2	7mm	-100 to 200° C	Two Rotors with Four Kel-F® Caps and Two Torlon® Caps	Various	
WP-501-7180-SET-5	7mm	-100 to 200° C	Five Rotors with Ten Kel-F® Caps and Five Torlon® Caps	Various	

Why Wilmad NMR Tubes?

- ISO 9001:2015 certified manufacturer
- 100% tested for spinner fitting
- 100% inspected for surface defects
- Standard-setter for NMR tube MHz frequency rating
- 60 years of experience in serving the NMR community
- Most comprehensive offering with over 1000 NMR products

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