Micro NMR Sample Tubes

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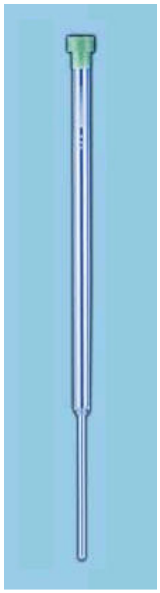
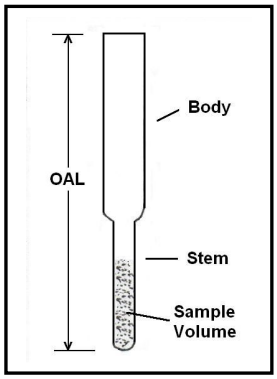
Whether you want to study metabolites, degradation products, bio-fluids, any mass limited samples or just want to conserve sample, these Micro Tubes can be very useful. They are designed for use with reduced sample volumes in cryo/cold probes as well as micro and all standard 5mm probes. The upper portion (body) of the tube is precision 5mm to fit all standard 5mm probes. The body also accommodates the Teflon Adapters used to secure a central capillary to further reduce the sample volume. In all cases the narrow sample column eliminates any susceptibility issue. Coaxial alignment is maintained to give the most stable sample column.

All volumes are calculated for a 30mm sample height and they are approximate values. Proper filling factors will vary for various probes. Inquire about large quantity prices.

To learn more about how Micro Tubes and capillaries can be useful in studying small sample volumes follow the link below. It will take you to a poster describing work completed using these products.



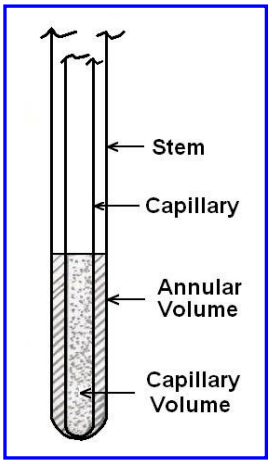


CATALOG NO.	SAMPLE VOLUME (µl)	STEM Length mm	OAL mm	Applications
NE-H5/4	264	60	200	Varian 5mm probes w/wo auto-changer. Bruker and JEOL 5mm probes.
NE-H5/4-Br	264	60	179	Bruker 5mm probes w/wo auto-changer. JEOL and Varian 5mm probes
NE-H5/3	130	60	200	Varian 3-5mm probes w/wo auto-changer. Bruker and JEOL 5mm probes.
NE-H5/3-Br	130	60	179	Bruker 5mm probes w/wo auto-changer. JEOL and Varian 5mm probes.
NE-H5/2.5	115	47	165	Bruker 2.5-5mm probes w/wo auto-changer.
NE-H5/2.5-V	115	60	200	Varian 3-5mm probes w/wo auto-changer. Bruker and JEOL 5mm probes.
NE-H5/2.5-V-Br	115	60	179	Bruker 2.5-5mm probes w/wo auto-changer. JEOL 5mm and Varian 5mm probes w/wo auto-changer.
NE-H5/2-V-Br	35	60	179	Bruker 2.5-5mm probes w/wo auto-changer. JEOL 5mm and Varian 3-5mm probes.

All volumes are calculated at 30 mm sample height and are for reference, only.
Proper filling factors may vary with the probe.

Micro Tube / Capillary Compatibility Chart

All Micro Tubes are designed to fit 5mm probes and/or specific micro probes. Find the combination that will best suit your sample size and probe. Adapters for securing the capillary coaxially in the tube are described on **Page 6**.



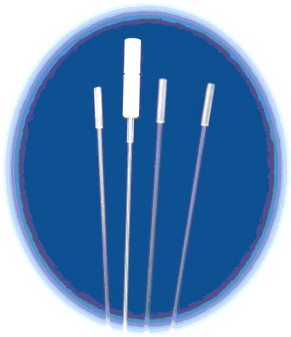
The micro tubes and capillaries, made of Type 1, Class A borosilicate glass, have uniform round bottoms and a light fire polish on the open end. They can be used for small sample volumes or for an external reference.

The capillary systems are ideal for the NMR studies of:
Isolated Metabolites & Mixtures, Cell Extracts, Biofluids, Cell Suspensions and all other Mass Limited Samples.

Beyond speeding up experiments for very soluble samples, sub-mM concentrations and sample volumes of 15 to 115µl are easily handled by the systems. Samples are placed into disposable capillaries and gradient - shims are done only on the sample itself. Other advantages include the possible reduction of temperature gradient effects on the water signal in a 5mm tube and potentially better resolution on smaller diameter samples. The residual (annular) space between the capillary and the tube can be filled with a lock or reference material as opposed to adding these materials directly into the sample. This not only keeps your sample as concentrated as possible, it allows easy access to multinuclear (^{1}H, ^{19}F, ^{2}H) measurements.

Capillary	1mm OD		1.7mm OD		2mm OD		2.5(A)mm OD		2.5mm OD	
Micro Tube	**Cap. Vol.**	**Anu. Vol.**	**Cap. Vol.**	**Anu. Vol.**	**Cap. Vol.**	**Anu. Vol.**	**Cap. Vol.**	**Anu. Vol.**	**Cap. Vol.**	**Anu. Vol.**
NE-UP5-7	15µl	391µl	50µl	347µl	35µl	321µl	97µl	268µl	115µl	268µl
NE-H5/4	15	240	50	196	35	170	97	117	115	117
NE-H5/4-Br	15	240	50	196	35	170	97	117	115	117
NE-H5/3	15	106	50	62	35	36	-	-	-	-
NE-H5/3-Br	15	106	50	62	35	36	-	-	-	-
NE-H5/2.5	15	91	50	47	-	-	-	-	-	-
NE-H5/2.5-V	15	91	50	47	-	-	-	-	-	-
NE-H5/2.5-V-Br	15	91	50	47	-	-	-	-	-	-
NE-H5/2-V-Br	15	11	-	-	-	-	-	-	-	-

Capillaries



All capillaries are made of Type 1, Class A borosilicate glass. They have uniform round bottoms and have a light fire polish on the open end.

NEW!! 1mm OD capillaries are available with a protective polymer sleeve to reduce breakage and potential loss of a valuable sample. The addition of the sleeve will also allow for repeated use of the Adapter, NE-325-5/1, which is required and is designed for use with NE-262-1-PS and NE-263-1-PS, only. Large quantity prices are available upon request.

Capillary Size mm	Volume at 30mm Height	Cat.no. 75mm Long	Cat.no 100mm Long
1 x 0.8	15µl	NE-262-1	NE-263-1
1 x 0.8-PS	15µl	NE-262-1-PS	NE-263-1-PS
1.7 x 1.4	50µl	NE-262-1.7	NE-263-1.7
2 x 1.2	35µl	NE-262-2	NE-263-2
2.5 x 2	97µl	NE-262-2.5-A	NE-263-2.5A
2.5 x 2.2	115µl	NE-262-2.5	NE-263-2.5

ADAPTERS

For use with capillary series NE-262-, NE-263- and precision thin-wall 5mm NMR sample tubes and all Micro Tubes. Made of Teflon with a blind hole to hold and seal the capillary. An internal thread in the top end of the Adapter accommodates the Extraction Rod, NE-341-5.

CATALOG NUMBER	FOR USE WITH THESE CAPILLARIES
NE-325-5/1	NE-262-1-PS, NE-263-1-PS
NE-325-5/1.7	NE-262-1.7, NE-263-1.7
NE-325-5/2	NE-262-2, NE-263-2
NE-325-5/2.5	NE-262-2.5, -2.5A; NE-263-2.5, -2.5A

EXTRACTION ROD

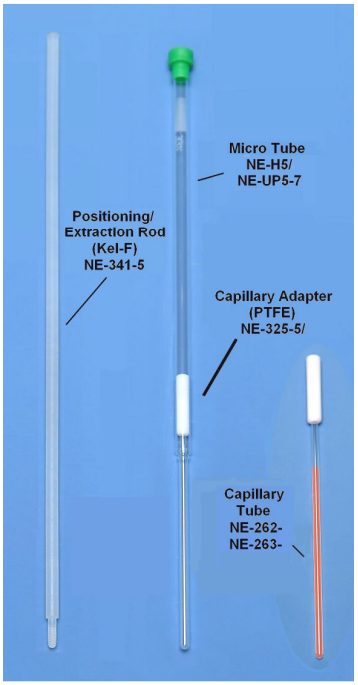
For use with all 5mm Adapters.

CATALOG NUMBER	DESCRIPTION
NE-341-5	Estraction Rod, Kel-F, 1/8 X 8", 4-40 thread

MICRO TUBE / CAPILLARY KITS

Refer to the Compatibility Chart (see **Page 5**) to select the Micro Tube and Capillary size that would best suit your sample volume and probe. The kits offer an inexpensive way to get started with micro sampling and additional components are all available separately. If you don't find what you need, please inquire.

Beyond speeding up experiments for very soluble samples, sub-mM concentrations and sample volumes of 15 to 115µl are easily handled by the systems. Samples are placed into disposable capillaries and gradient - shims are done only on the sample itself. Other advantages include the possible reduction of temperature gradient effects on the water signal in a 5mm tube and potentially better resolution on smaller diameter samples. The residual (annular) space between the capillary and the tube can be filled with a lock or reference material as opposed to adding these materials directly into the sample. This not only keeps your sample as concentrated as possible, it allows easy access to multinuclear (^{1}H, ^{19}F, ^{2}H) measurements.



CATALOG NUMBER (Kit)	Micro Tube	Capillary	Capillary OD	Capillary Volume	Annular Volume
NE-380-A	NE-H5/3	NE-262-2	2mm	35µl	36µl
NE-380-B	NE-H5/2.5	NE-262-1.7	1.7mm	50µl	47µl
NE-380-C	NE-UP5-7	NE-262-2.5	2.5mm	115µl	268µl
NE-380-D	NE-H5/3-Br	NE-262-2	2mm	35µl	36µl
NE-380-E	NE-H5/2.5-V-Br	NE-262-1.7	1.7mm	50µl	47µl

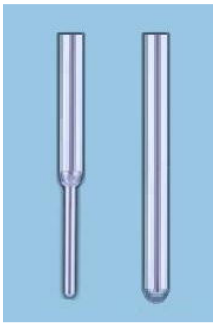
All volumes are calculated at 30 mm sample height and are for reference, only.
Proper filling factors may vary with the probe.

Ref: **A Simple and Versatile NMR Tube Construct for Sensitive and Multinuclear Analysis**
Istvan Pelczer, Dept. of Chemistry, Princeton University, Princeton NJ 08544
ipelczer@princeton.edu

View Poster

AUTO PREP / SAMPLING SYSTEMS - SAMPLE TUBES / MICRO

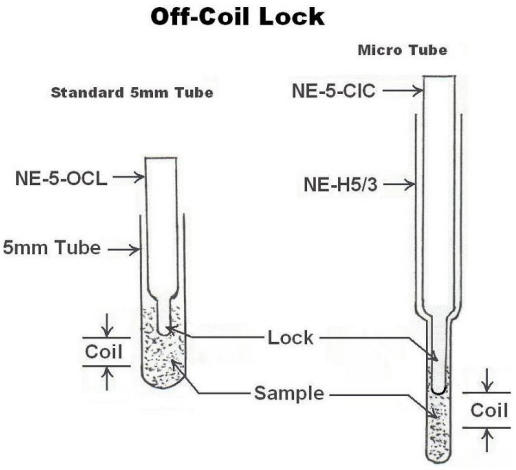
For automated sample prep/changer systems using 5mm x 101.5mm (4") sample tubes.
All sample volumes taken at 30mm sample height. ***Inquire about large quantity prices***.



Catalog Number	Sample Volume (µl)	Body OD	Stem OD
NE-HL5-4-AS	415	5mm	-
NE-H5/2-AS	35	5mm	2.0mm
NE-H5/2.5-AS	115	5mm	2.5mm
NE-H5/3-AS	135	5mm	3.0mm

OFF-COIL LOCK

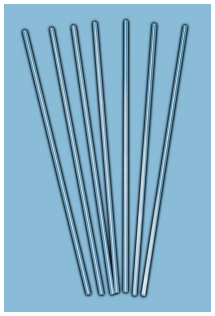
- Separate lock and shim materials.
- Changing lock for other nuclei is easily accomplished.
- Ideal for cells and other bio-fluids.
- Fill active area of coil with native sample for maximizing sensitivity and place the lock in a special insert positioned just at the top edge of the coil.
- The D_2O lock is sufficient to stabilize the magnetic field and gradient shimming can be done on the ^1H signal of the water in the sample.
- Use NE-5-OCL for standard thin wall 5mm tubes.
- Use NE-5-CIC for micro tube NE-H5/3.
- A work in progress, it can be useful for such biomolecular samples.



Catalog Number	Lock Volume
NE-5-OCL	~110 µl
NE-5-CIC	~60 µl
NE-H5/3	Outer Tube

Ref: **The Advantageous Separation of Lock and Shim for High-Resolution NMR**
Istvan Pelczer, Dept. of Chemistry, Princeton University, Princeton NJ 08544 ipelczer@princeton.edu

1.7mm MICRO NMR CAPILLARY



For use with Nalorac 1.7mm micro probes. These capillaries have a 7% larger ID than others available and offer a 15% increase in filling factor.

These capillaries have open ends, which allows you to easily clean them just prior to use in order to ensure that your sample will remain clean. A self-contained micro torch, available from major lab supply companies, is most convenient for sealing the tubes.

SPECIFICATIONS: 1.7mm OD x 1.4mm ID x 125mm long, open ends. Approximate volume per 10mm height is 60 µl.

Catalog Number	Description
NE-1.7-125	Micro NMR Capillary, 1.7mm OD

3mm NMR SAMPLE TUBES (0.1175" - 0.1180")

Improved design allows for increased sample volume while maintaining adequate wall thickness to help reduce breakage. For use in **Nalorac 3mm micro probes**.

Catalog Number	Description	Length
NE-H3-7 NE-H3-8	400+ MHz; 3mm OD x 2.36mm ID x 0.32mm Wall Filling Factor: 118 µl per 27mm height Concentricity 0.001" TIR, Camber 0.001" TIR	7" (178mm) 8"(203mm)