

Vol. A04

SHIGEMI<sup>®</sup>

NMR/EPR Tubes

&

Accessories



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# Symmetrical MICRO NMR Tubes

These unique NMR microtubes are made out of a special type of hard glass with excellent chemical durability. They are magnetic susceptibility matched to each of the following solvents:

- CDCL<sub>3</sub>
- CD<sub>3</sub>OD
- D<sub>2</sub>O
- DMSO

Therefore, the best resolution of a sample can be obtained in each of these solutions with minimal amounts of sample. Yet, the use of a small amount of solution will not affect the spectral resolution or the sideband.

## How to use Symmetrical MICRO NMR Tubes

★ Do not spinning

★ We do not garanty auto shimming

Plaese make shim file from 0

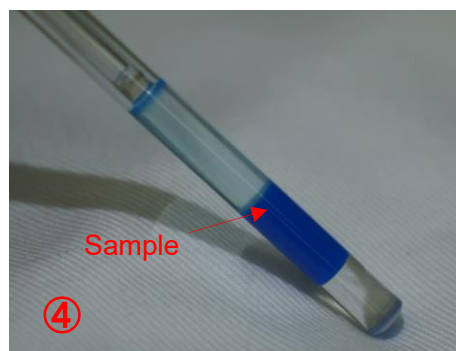
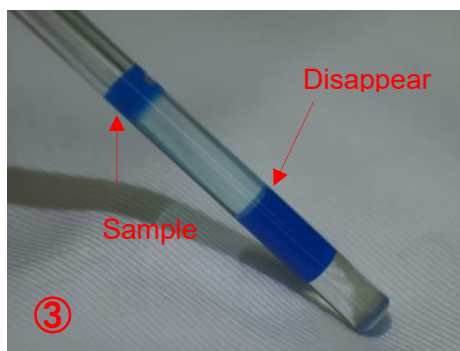
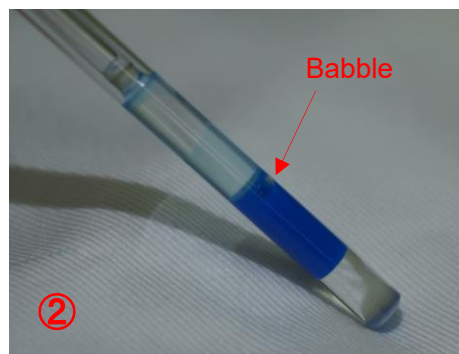
★ Plaese take out bables

① You turn in an inner tubeslowly

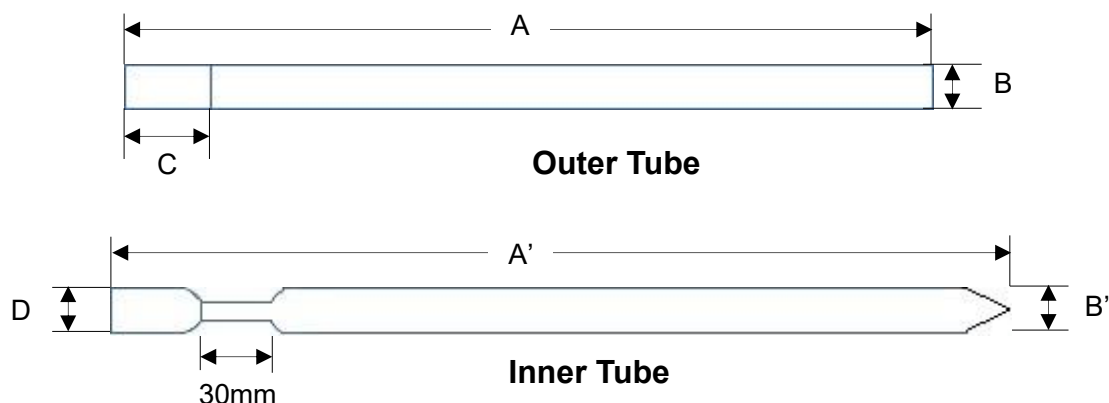
② Brief stop when a inner tube tach at sample surface.

③ You push quick a inner tube

④ Bables was disapred return an inner tube right position



# Symmetrical MICRO NMR Tubes for D<sub>2</sub>O

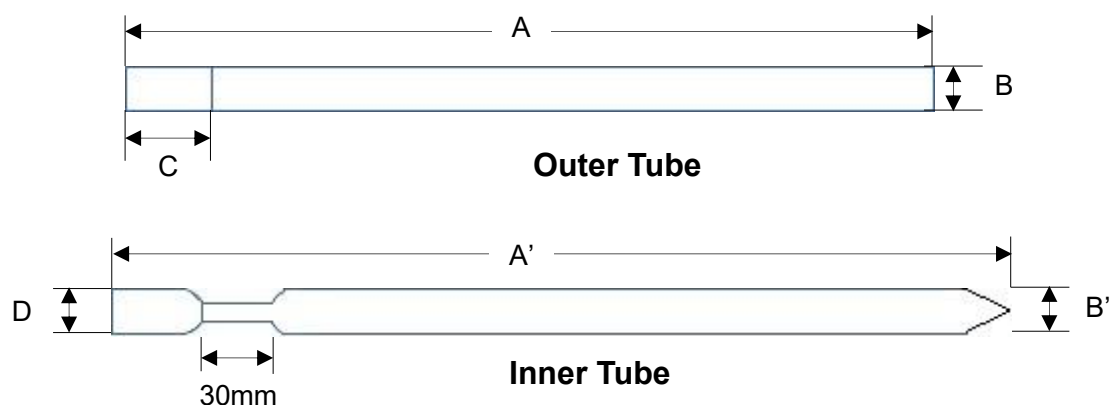


Parts N.O.		Outer Tube(mm)			Inner Tube(mm)			Price (1set) JPY	Case Quantity
		Length A	O.D B	Muched Glass C	Length A'	O.D. B'	Muched glass D		
2.5mmφ	BMS-0025	120	2.5 +0 -0.01	6	115	1.8	1.86 +0 -0.01	7,000	5sets
3mmφ	BMS-003	180	3.00 -0.01 -0.02	10	190	2.4	2.47 +0 -0.01	8,000	5sets
4mmφ	BMS-004B	180	4.000 +0.005 -0.010	8	190	3.1	3.16 +0 -0.01	9,000	5sets
	BMS-004J	180	4.000 +0.005 -0.010	12	190	3.1	3.16 +0 -0.01	9,000	5sets
	BMS-005V	180	4.000 +0.005 -0.010	15	190	3.1	3.16 +0 -0.01	9,000	5sets
5mmφ	BMS-005B	180	4.965 +0.005 -0.010	8	190	4.1	4.17 +0 -0.01	9,000	5sets
	BMS-005J	180	4.965 +0.005 -0.010	12	190	4.1	4.17 +0 -0.01	9,000	5sets
	BMS-005V	180	4.965 +0.005 -0.010	15	190	4.1	4.17 +0 -0.01	9,000	5sets
8mmφ	BMS-008BJ	190	7.98 ±0.01	10	200	6.9	6.97 +0 -0.01	18,000	2sets
	BMS-008V	190	7.98 ±0.01	15	200	6.9	6.97 +0 -0.01	20,000	2sets
10mmφ	BMS-010BJ	190	9.98 +0 -0.01	10	200	8.9	8.97 +0 -0.01	22,000	2sets
	BMS-010V	190	8.98 ±0.01	15	200	8.9	8.97 +0 -0.01	25,000	2sets

Part N.O. : The end character J and BJ is for JEOL, B and BJ is for Bruker, V is for Varian (Agilent).

BMS-0025 for Bruker and BMS-003 for every system.

# Symmetrical MICRO NMR Tubes for CDCl<sub>3</sub>

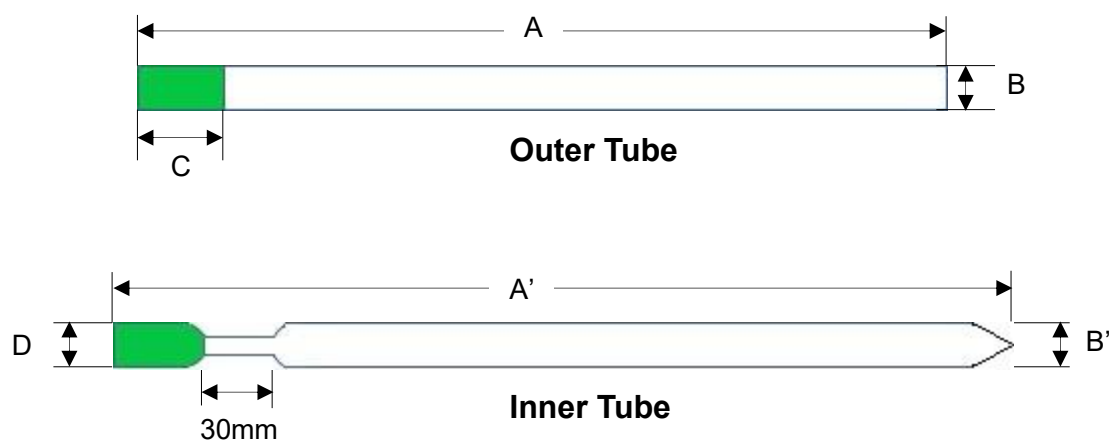


Parts N.O.		Outer Tube(mm)			Inner Tube(mm)			Price (1set) JPY	Case Quantity
		Length A	O.D B	Muched glass C	Length A'	O.D. B'	Muched glass D		
2.5mmφ	CMS-0025	120	2.5 +0 -0.01	6	115	1.8	1.86 +0 -0.01	7,000	5sets
3mmφ	CMS-003	180	3.00 -0.01 -0.02	10	190	2.4	2.47 +0 -0.01	8,000	5sets
5mmφ	CMS-005B	180	4.965 +0.005 -0.010	8	190	4.1	4.17 +0 -0.01	9,000	5sets
	CMS-005J	180	4.965 +0.005 -0.010	12	190	4.1	4.17 +0 -0.01	9,000	5sets
	CMS-005V	180	4.965 +0.005 -0.010	15	190	4.1	4.17 +0 -0.01	9,000	5sets
8mmφ	CMS-008BJ	190	7.98 ±0.01	10	200	6.9	6.97 +0 -0.01	16,000	2sets
	CMS-008V	190	7.98 ±0.01	15	200	6.9	6.97 +0 -0.01	18,000	2sets
10mmφ	CMS-010BJ	190	9.98 +0 -0.01	10	200	8.9	8.97 +0 -0.01	17,000	2sets
	CMS-010V	190	8.98 ±0.01	15	200	8.9	8.97 +0 -0.01	19,000	2sets

Part N.O. : The end character J and BJ is for JEOL, B and BJ is for Bruker, V is for Varian (Agilent).

CMS-0025 for Bruker and CMS-003 for every system.

# Symmetrical MICRO NMR Tubes for DMSO (CD<sub>3</sub>)<sub>2</sub>SO, C<sub>6</sub>D<sub>6</sub>, C<sub>5</sub>D<sub>5</sub>N

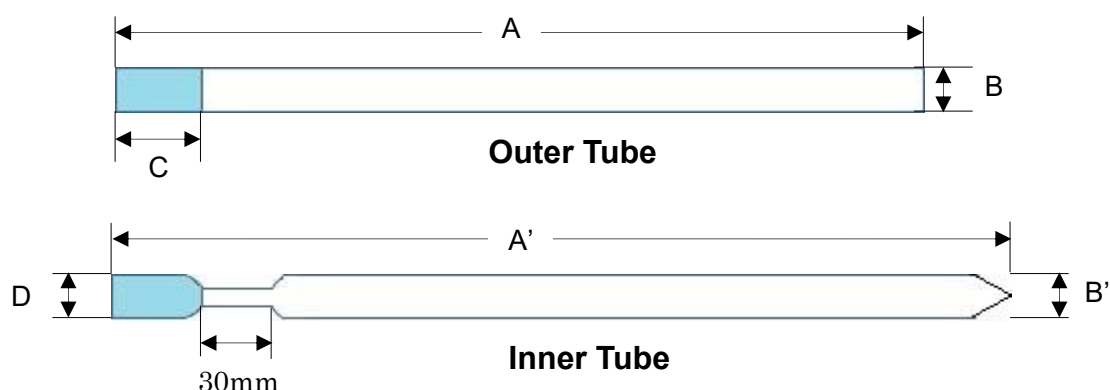


Parts N.O.		Outer Tube(mm)			Inner Tube(mm)			Price (1set) JPY	Case Quantity
		Length A	O.D B	Mached glass C	Length A'	O.D. B'	Mached glass D		
2.5mmφ	DMS-0025	120	2.5 +0 -0.01	6	115	1.8	1.86 +0 -0.01	7,000	5sets
3mmφ	DMS-003	180	3.00 -0.01 -0.02	10	190	2.4	2.47 +0 -0.01	8,000	5sets
5mmφ	DMS-005B	180	4.965 +0.005 -0.010	8	190	4.1	4.17 +0 -0.01	10,000	5sets
	DMS-005J	180	4.965 +0.005 -0.010	12	190	4.1	4.17 +0 -0.01	10,000	5sets
	DMS-005V	180	4.965 +0.005 -0.010	15	190	4.1	4.17 +0 -0.01	10,000	5sets
8mmφ	DMS-008BJ	190	7.98 ±0.01	10	200	6.9	6.97 +0 -0.01	16,000	2sets
	DMS-008V	190	7.98 ±0.01	15	200	6.9	6.97 +0 -0.01	18,000	2sets
10mmφ	DMS-010BJ	190	9.98 +0 -0.01	10	200	8.9	8.97 +0 -0.01	17,000	2sets
	DMS-010V	190	8.98 ±0.01	15	200	8.9	8.97 +0 -0.01	19,000	2sets

Part N.O. : The end character J and BJ is for JEOL, B and BJ is for Bruker, V is for Varian (Agilent).

DMS-0025 for Bruker and DMS-003 for every system.

# Symmetrical MICRO NMR Tubes for CD<sub>3</sub>OD, CD<sub>3</sub>CN

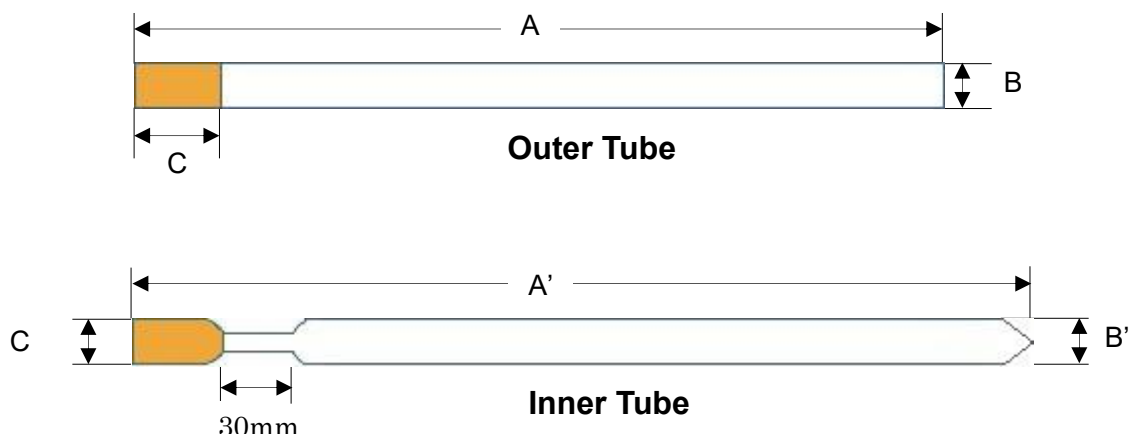


Parts N.O.		Outer Tube(mm)			Inner Tube(mm)			Price (1set) JPY	Case Quantity
		Length A	O.D B	Mached glass C	Length A'	O.D. B'	Mached glass D		
2.5mmφ	MMS-0025	120	2.5 +0 -0.01	6	115	1.8	1.86 +0 -0.01	7,000	5sets
3mmφ	MMS-003	180	3.00 -0.01 -0.02	10	190	2.4	2.47 +0 -0.01	8,000	5sets
5mmφ	MMS-005B	180	4.965 +0.005 -0.010	8	190	4.1	4.17 +0 -0.01	10,000	5sets
	MMS-005J	180	4.965 +0.005 -0.010	12	190	4.1	4.17 +0 -0.01	10,000	5sets
	MMS-005V	180	4.965 +0.005 -0.010	15	190	4.1	4.17 +0 -0.01	10,000	5sets
8mmφ	MMS-008BJ	190	7.98 ±0.01	10	200	6.9	6.97 +0 -0.01	16,000	2sets
	MMS-008V	190	7.98 ±0.01	15	200	6.9	6.97 +0 -0.01	18,000	2sets
10mmφ	MMS-010BJ	190	9.98 +0 -0.01	10	200	8.9	8.97 +0 -0.01	17,000	2sets
	MMS-010V	190	8.98 ±0.01	15	200	8.9	8.97 +0 -0.01	19,000	2sets

Part N.O. : The end character J and BJ is for JEOL, B and BJ is for Bruker, V is for Varian (Agilent).

MMS-0025 for Bruker and MMS-003 for every system.

# Symmetrical MICRO NMR Tubes for ACETONE-d6



Parts N.O.		Outer Tube(mm)			Inner Tube(mm)			Price (JPY) (1set including 1 outer tube and 1 innertube)
		Length A	O.D B	Muched glass C	Length A'	O.D. B'	Muched glass D	
2.5mmφ	AMS-0025	120	2.5 +0 -0.01	6	115	1.8	1.86 +0 -0.01	12,000
3mmφ	AMS-003	180	3.00 -0.01 -0.02	10	190	2.4	2.47 +0 -0.01	12,000
5mmφ	AMS-005B	180	4.965 +0.005 -0.010	8	190	4.1	4.17 +0 -0.01	13,000
	AMS-005J	180	4.965 +0.005 -0.010	12	190	4.1	4.17 +0 -0.01	13,000
	AMS-005V	180	4.965 +0.005 -0.010	15	190	4.1	4.17 +0 -0.01	13,000
8mmφ	AMS-008BJ	190	7.98 ±0.01	10	200	6.9	6.97 +0 -0.01	26000
	AMS-008V	190	7.98 ±0.01	15	200	6.9	6.97 +0 -0.01	30000
10mmφ	AMS-010BJ	190	9.98 +0 -0.01	10	200	8.9	8.97 +0 -0.01	30000
	AMS-010V	190	8.98 ±0.01	15	200	8.9	8.97 +0 -0.01	35000

Part N.O. : The end character J and BJ is for JEOL, B and BJ is for Bruker, V is for Varian (Agilent).

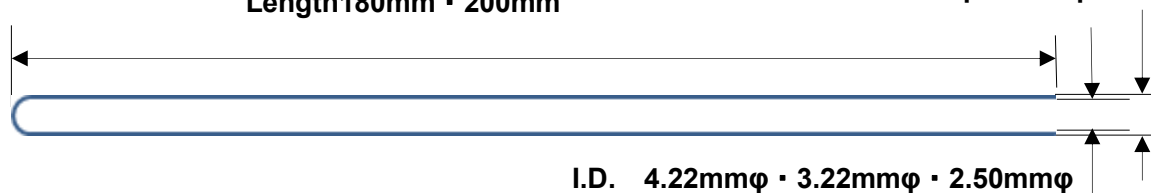
MMS-0025 for Bruker and MMS-003 for every system.



# Ultra Precision NMR Sample Tubes

Length 180mm · 200mm

O.D. 5mmφ · 4mmφ · 3mmφ



I.D. 4.22mmφ · 3.22mmφ · 2.50mmφ

5mmφ Ultra Precision NMR Sample Tubes **Thin wall**

**DURAN®**

Parts N.O.	Dimension (mm)			Tolerance (μm)		Price (1piece) JPY	Case Quantity
	Length	O.D.	I.D.	Straightness	wall thickness control		
PS-001-7	180	4.965 +0.005 -0.010	4.220 +0.01 -0	10	5	1,900	20
PS-001-8	200	4.965 +0.005 -0.010	4.220 +0.01 -0	10	5	1,950	20
PS-002-7	180	4.965 +0.005 -0.010	4.220 +0.01 -0	15	10	1,600	20
PS-002-8	200	4.965 +0.005 -0.010	4.220 +0.01 -0	15	10	1,650	20
PS-003-7	180	4.965 +0.005 -0.010	4.220 +0.01 -0	15	20	1,400	20
PS-003-8	200	4.965 +0.005 -0.010	4.220 +0.01 -0	15	20	1,450	20
PS-004-7	180	4.965 +0.005 -0.010	4.220 +0.01 -0	20	25	900	20
PS-004-8	200	4.965 +0.005 -0.010	4.220 +0.01 -0	20	25	950	20

**PYREX®**

4mmφ Ultra Precision NMR Sample Tubes **Thin wall**

Parts N.O.	Dimension (mm)			Tolerance (μm)		Price (1piece) JPY	Case Quantity
	Length	O.D.	I.D.	Straightness	wall thickness control		
PR-001	180	4 +0 -0.01	3.22 +0.010 -0	15	10	2,000	20
PR-002	180	4.965 +0.005 -0.010	4.220 +0.01 -0	20	20	1,500	20

**PYREX®**

3mmφ Ultra Precision NMR Sample Tubes **Thin wall**

Parts N.O.	Dimension (mm)			Tolerance (μm)		Price (1piece) JPY	Case Quantity
	Length	O.D.	I.D.	Straightness	wall thickness control		
PN-001	180	3.0 +0.01 -0.02	2.5 +0.01 -0	15	5	2,000	20
PN-002	180	3.0 +0.01 -0.02	2.5 +0.01 -0	25	20	1,500	20

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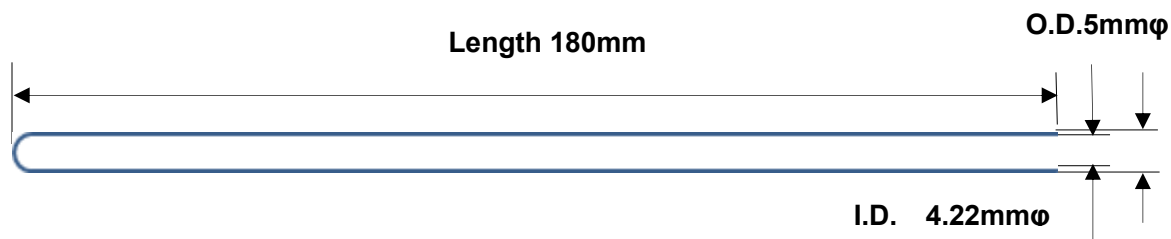
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 株式会社 シゲミ

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sales mitsuo.seki@shigemi.co.jp

# Economy NMR Sample Tubes

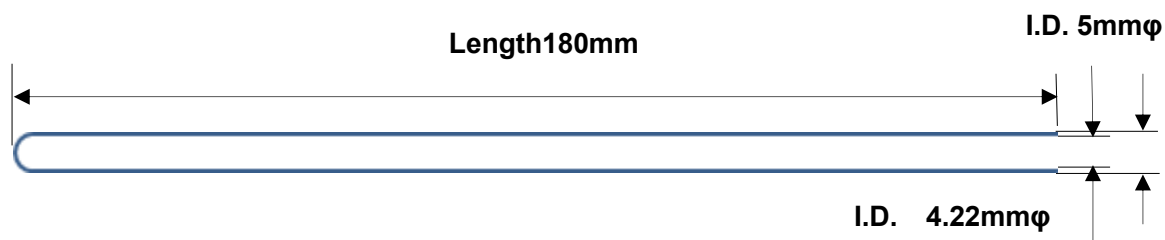
For routine examination. A quality as same PS-004-7 as Ultra Precision Tubes  
We can sale a unit as 100 tubes only.



**DURAN®**

## 5mm Economy NMR Sample Tubes **Thin Wall**

Parts N.O.	Dimension (mm)			Tolerance (μm)		Price JPY	A unit
	Length	O.D.	I.D.	Straightness	Wall thickness control		
PS-005	180	4.965 +0.005 -0.010	4.220 +0.01 -0	25	40	65,000	100 peace



★Matreal is Brosilicate glass ASTM Type1 Class A as DURAN® of Shott AG

★You can use V.T. examination

★We can sale it a unit as 25peaces only

**Made of DURAN®**

## 5mm Dispersable NMR Sample Tubes

Parts N.O.	Dimension (mm)			Straightness(μm)	Price/a peace(JPY)			Case Quantity
	Length	O.D.	I.D.		1 unit	2~7units	Over8units	
EC-57	180	4.965 +0.005 -0.010	4.220 ±0.10	30	320	280	220	25peaces
EC-58	200	4.965 +0.005 -0.010	4.220 ±0.10	30	330	290	230	25peaces

# 5mmφ Micro Bottom Tubes

## Benefit

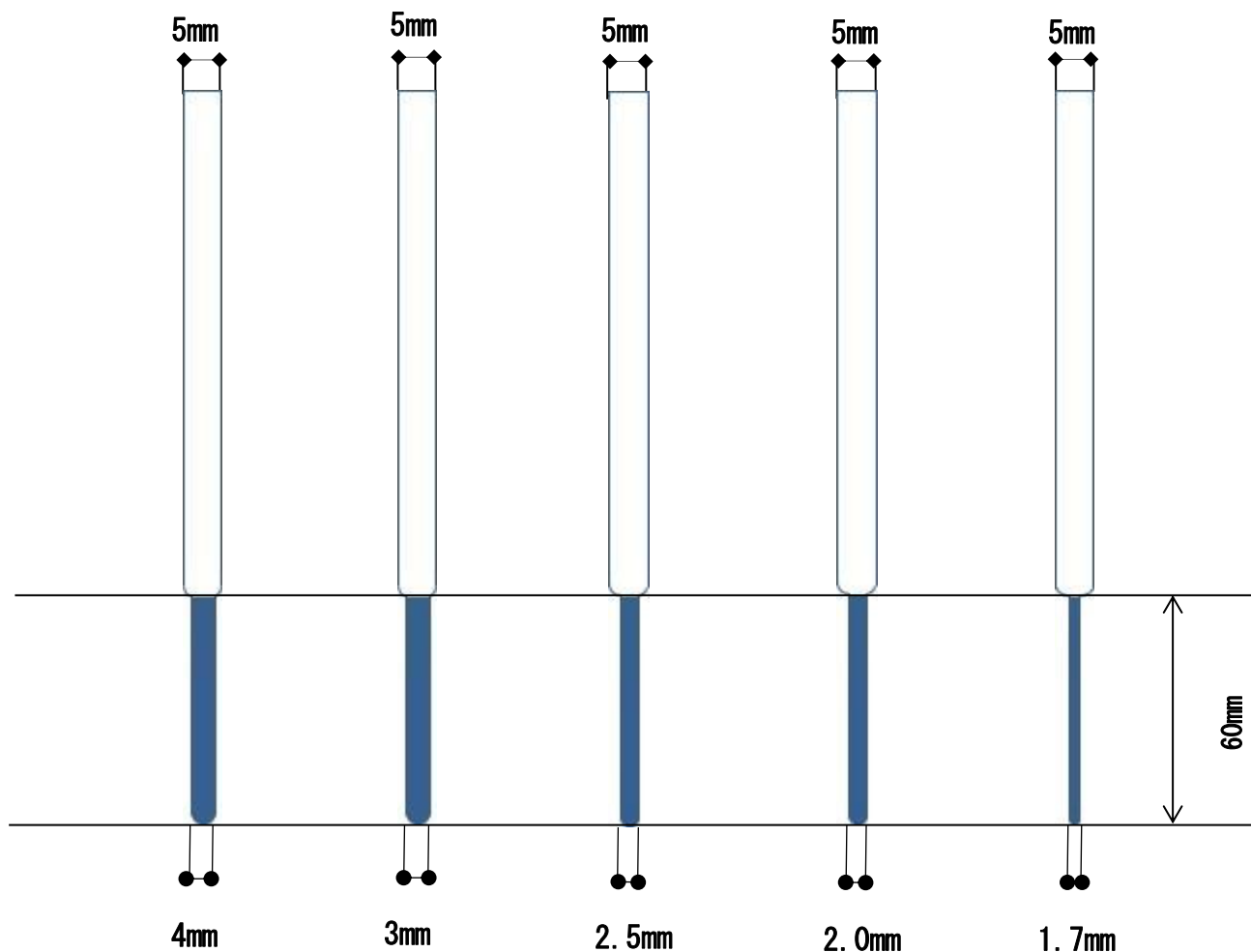
- ★ Become high concentration
- ★ Save samples & solvent
- ★ Can be set with 5mm spinner
- ★ Much better DOSY & Diffusion (small amount of Temperature gradient)
- ★ Can be used each probe as ☺

	5mm probe	4mm probe	3mm probe	2.5mm probe	1.7mm probe
SP501 5mm/1.7mm	Not recommend	Not recommend	☺	☺	☺
SP502 5mm/2mm	Not recommend	☺	☺	☺	X
SP503 5mm/2.5mm	☺	☺	☺	☺	X
SP504 5mm/3mm	☺	☺	☺	X	X
SP505 5mm/4mm	☺	☺	X	X	X

★ Matreal is Brosilicate glass ASTM Type1 Class A as DURAN® of Shott AG

★ You can use V.T. examination

# 5mmφ Micro Bottom Tubes



## Volume comparison

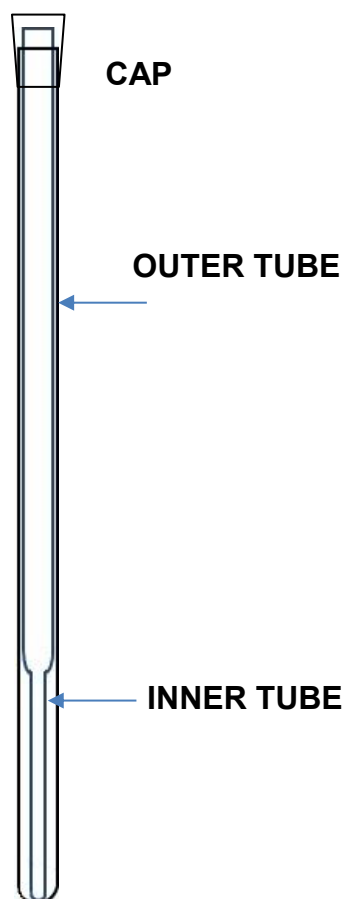
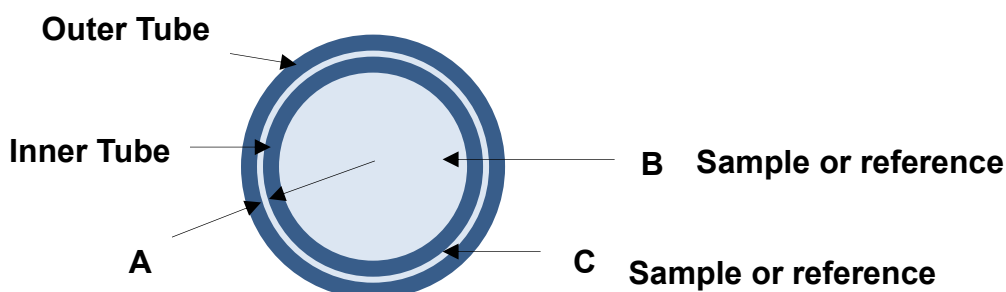
Sample height	4mm(SP-505)	3mm(SP-504)	2.5mm(SP-503)	2.0mm(SP-502)	1.7mm(SP-501)	5mm Thin wall
30mm	223 uL	145 uL	84 uL	53 uL	34 uL	410uL
40mm	317 uL	194 uL	113 uL	70 uL	45 uL	549uL
50mm	398 uL	243 uL	141 uL	88 uL	56 uL	689uL

Parts N.O.	Overall Length	Upper O.D.	Stem Length	Stem O.D.	Stem I.D.	List Price(JPY)
SP-501	180mm	5mm	60mm	1.7mm	1.2mm±0.01mm	3,500
SP-502	180mm	5mm	60mm	2mm	1.5mm±0.01mm	3,500
SP-503	180mm	5mm	60mm	2.5mm	1.9mm±0.01mm	2,500
SP-504	180mm	5mm	60mm	3mm	2.5mm±0.01mm	2,500
SP-505	180mm	5mm	60mm	4mm	3.2mm±0.01mm	2,500

# SHIGEMI® Precision Coaxial System

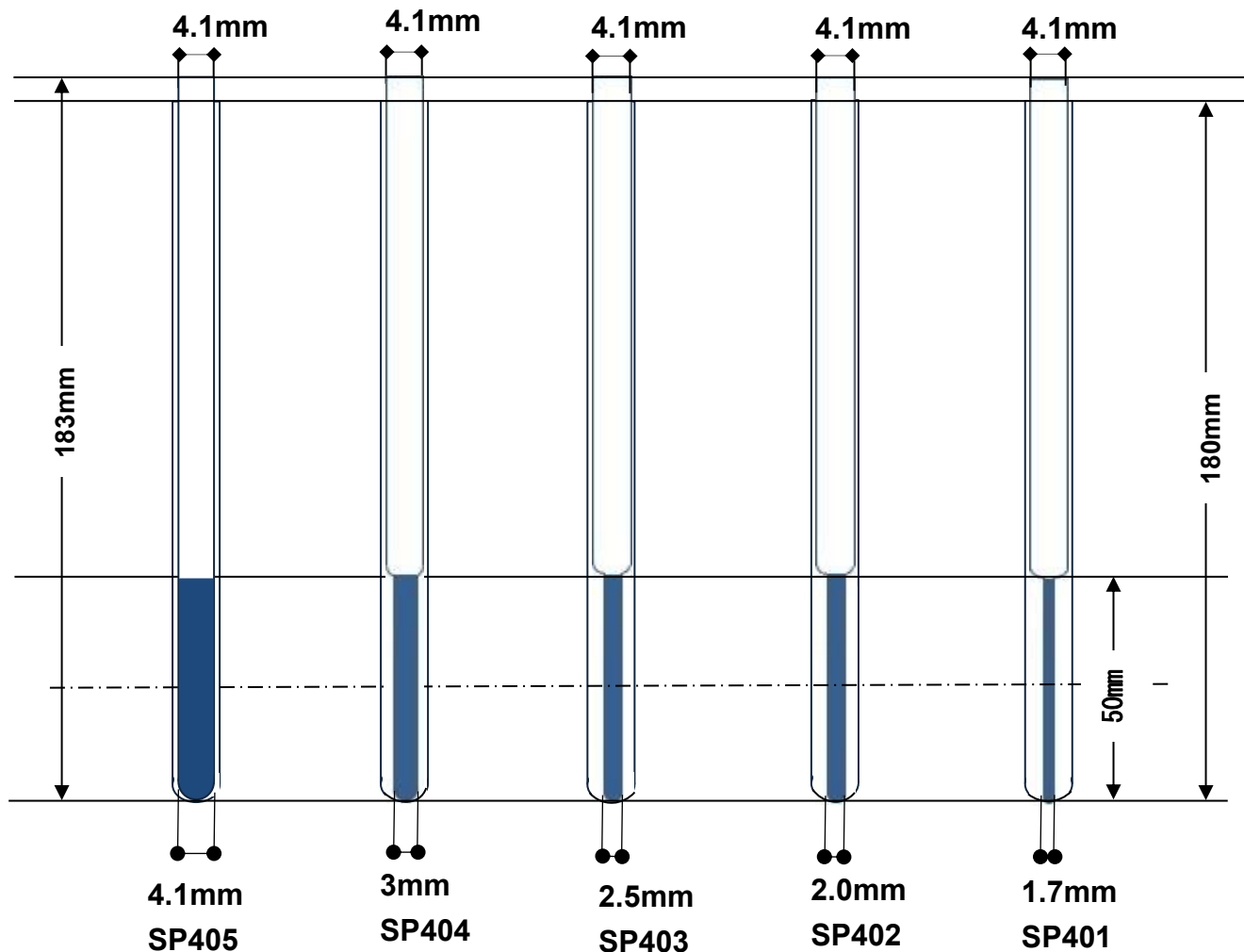
Coaxial cell for use in the external reference method has the following benefit.

- ★ External reference method of NMR analysis and internal reference method
- ★ It can be measured in a pure state without contaminating the sample by using a precision coaxial tube.
- ★ It does not show any interaction with the reference material and the sample by using an external reference method.
- ★ It is easy to cross-reference with the reference samples.
- ★ Convenient storage of special compounds, or high purity or expensive, valuable trace compounds will be able to re-test in the state that held the deterioration due to aging by the sealing in advance to an NMR tube.
- ★ Accurate measurement of the chemical shift



**SP Thin wall Outer tube as PS-001-7**  
**SPT Ultra Thin wall Outer tube as PST-001-7**

Part N.O.	INNER TUBE O.D	INNER Volume	TUBE	OUTER TUBE Volume
SP-401	1.7mm		56uL	579uL
SP-402	2mm		88uL	535uL
SP-403	2.5mm		141uL	448uL
SP-404	3mm		244uL	341uL
SP-405	4.1mm		399uL	33uL
SPT-401	1.7mm		56uL	771uL
SPT-402	2mm		88uL	728uL
SPT-403	2.5mm		141uL	640uL
SPT-404	3mm		244uL	534uL
SPT-405	4.1mm		399uL	263uL



System Include as follows(1 Set) INNER TUBE:1PCS OUTER TUBE :1PCS CAP :1PCS

**SP Thin wall Outer tube as PS-001-7**

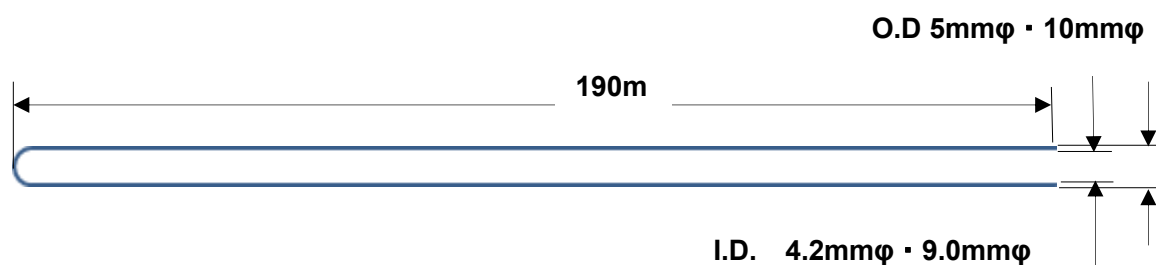
Parts N.O.	Length of INNERTUBE	Upper O.D of INNERTUBE	Stem Length	Stem O.D.	Stem I.D.	Stem I.D. tolerance	Price for 1 Set
SP-401	183mm	4.1mm	50mm	1.7mm	1.2mm	±0.01mm	5,500JPY
SP-402	183mm	4.1mm	50mm	2mm	1.5mm	±0.01mm	5,500JPY
SP-403	183mm	4.1mm	50mm	2.5mm	1.9mm	±0.01mm	4,500JPY
SP-404	183mm	4.1mm	50mm	3mm	2.5mm	±0.01mm	4,500JPY
SP-405	183mm	4.1mm	50mm	4.1mm	3.2mm	±0.01mm	4,500JPY

System Include as follows(1 Set) INNER TUBE:1PCS OUTER TUBE :1PCS CAP :1PCS

**SPT Ultra Thin wall Outer tube as PST-001-7**

Parts N.O.	Length of INNERTUBE	Upper O.D of INNERTUBE	Stem Length	Stem O.D.	Stem I.D.	Stem I.D. tolerance	Price for 1 Set
SPT-401	183mm	4.1mm	50mm	1.7mm	1.2mm	±0.01mm	6,500JPY
SPT-402	183mm	4.1mm	50mm	2mm	1.5mm	±0.01mm	6,500JPY
SPT-403	183mm	4.1mm	50mm	2.5mm	1.9mm	±0.01mm	5,500JPY
SPT-404	183mm	4.1mm	50mm	3mm	2.5mm	±0.01mm	5,500JPY
SPT-405	183mm	4.1mm	50mm	4.1mm	3.2mm	±0.01mm	5,500JPY

# Quartz NMR Tubes



Parts N.O.	Dimension (mm)			Price/a peace	Material	For
	Length	O.D.	I.D.			
SS-002	190	4.965 -0.005 -0.010	4.20 ±0.1	2,200	Fused Silica	NMR
SS-0010	190	9.98 ±0.01	9.0 ±0.1	4,000	Fused Silica	NMR

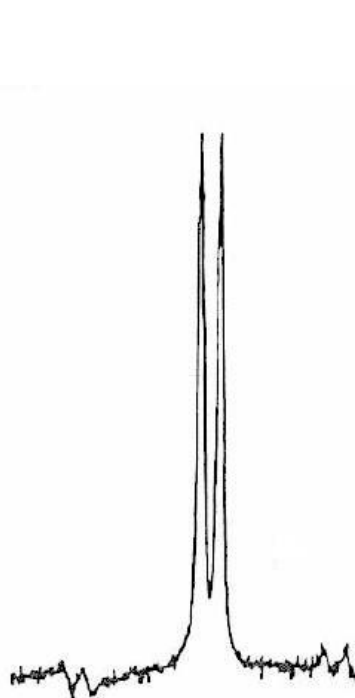
Fused Silica	Metallic impurity (ppm)										OH radical
	Na	K	Li	Mg	Mn	Fe	Ca	Al	Tl	Zr	
	1.3	<3.0	1.0	0.5	0.1	1.9	1.8	20.3	1.4	2.4	<5

# Ultra thin wall NMR Tubes

## Benefit

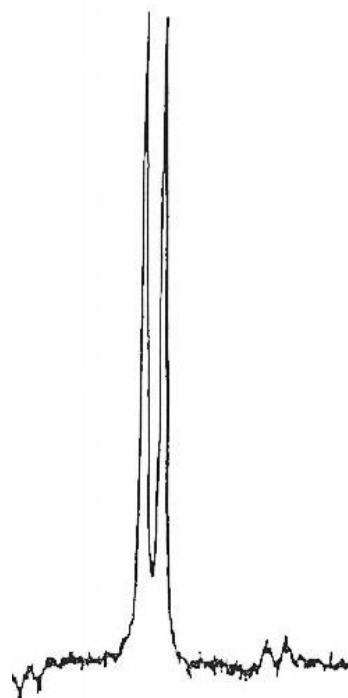
- ★ Tube thickness effect Signal to Noise
- ★ Volume gain
- ★ Sample approach RF coil
- ★ Better resolution of NMR spectra (especially Ultra High Field Magnet)
- ★ Easy to use

★ 25% gain Signal to Noise



Ultra Precision NMR Sample Tubes

Figure 1



Thin wall NMR Tubes

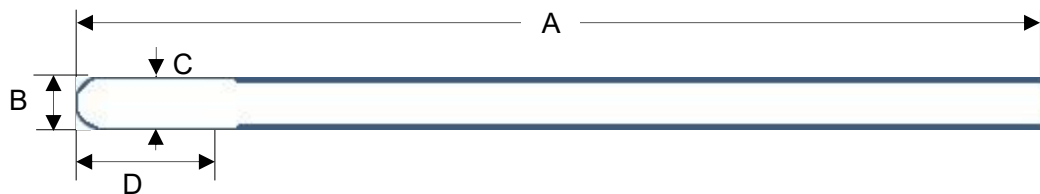
Figure 2

<sup>1</sup>H NMR Data 1 scan 20mM Sucrose in D<sub>2</sub>O 298°K Bruker 600MHz

U.S. Patent No.5, 573, 567

# Ultra Thin wall NMR Tubes



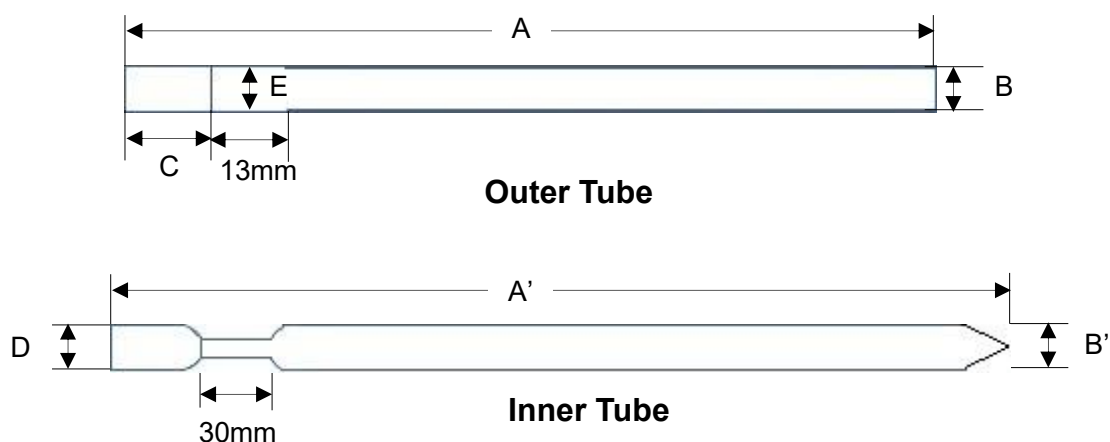


Parts N.O.	Dimension (mm)				Tolerance ( $\mu\text{m}$ )		Price/a piece (JPY)
	Length(A)	O.D.(B)	Wall Thickness(C)	Length of thin wall(D)	Wall thickness control	Straightness	
PST-001	180	4.965 +0.005 -0.010	0.21	50	10	10	3,000
PST-002	180	4.965 +0.005 -0.010	0.21	50	20	25	2,000
ST8-001	190	7.98 $\pm 0.01$	0.25	50	10	10	4,500
ST8-002	190	7.98 $\pm 0.01$	0.25	50	20	20	3,500
ST10-001	190	9.98 $\pm 0.01$	0.25	50	10	10	4,500
ST10-002	190	9.98 $\pm 0.01$	0.25	50	20	20	3,500

#### Volume comparison (30mm Height)

I.D( $\phi$ )	Ultara Thin wall		Thin wall
5mm	518 $\mu\text{L}$	25% gain	410 $\mu\text{L}$
8mm	1,347 $\mu\text{L}$	21% gain	1,118 $\mu\text{L}$
10mm	2,109 $\mu\text{L}$	15% gain	1,824 $\mu\text{L}$

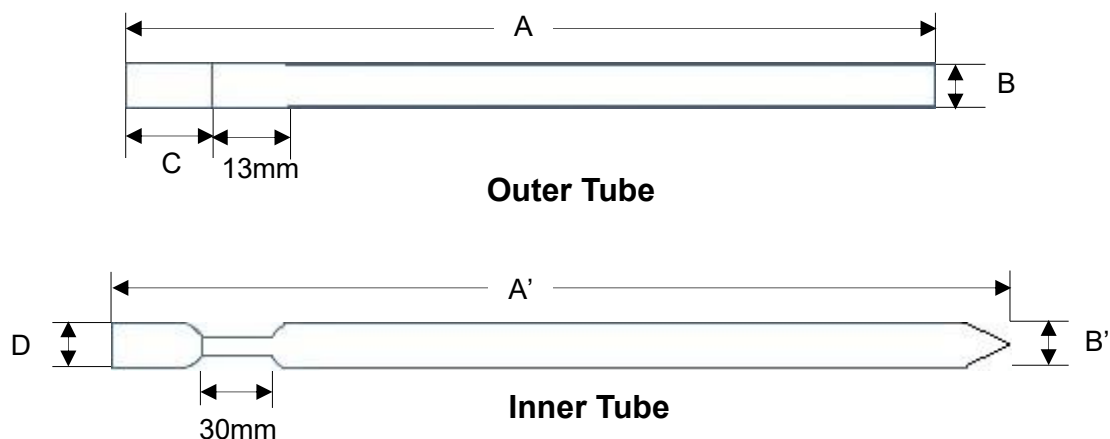
# Thin wall Symmetrical MICRO NMR Tubes for D<sub>2</sub>O



Parts N.O.		Outer Tube(mm)				Inner Tube(mm)			Price (1 Set) JPY
		Length A	O.D. B	Mached Glass C	Thin Wall I.D. E	Length A'	O.D. B'	Mached Glass O.D. D	
5mmφ	BMS-005T(B)	180	4.965 +0.005 -0.010	8	4.52	190	4.1	4.17 +0 -0.01	10,000
	BMS-005T(J)	180	4.965 +0.005 -0.010	12	4.52	190	4.1	4.17 +0 -0.01	10,000
	BMS-005T(V)	180	4.965 +0.005 -0.010	15	4.52	190	4.1	4.17 +0 -0.01	10,000
8mmφ	BMS-008T(B)	190	7.98 ±0.01	10	7.5	200	6.9	6.97 +0 -0.01	20,000
	BMS-008T(V)	190	7.98 ±0.01	15	7.5	200	6.9	6.97 +0 -0.01	22,000

Part N.O. : The end character (J) is for JEOL, (B) is for Bruker, (V) is for Varian(Agilent)

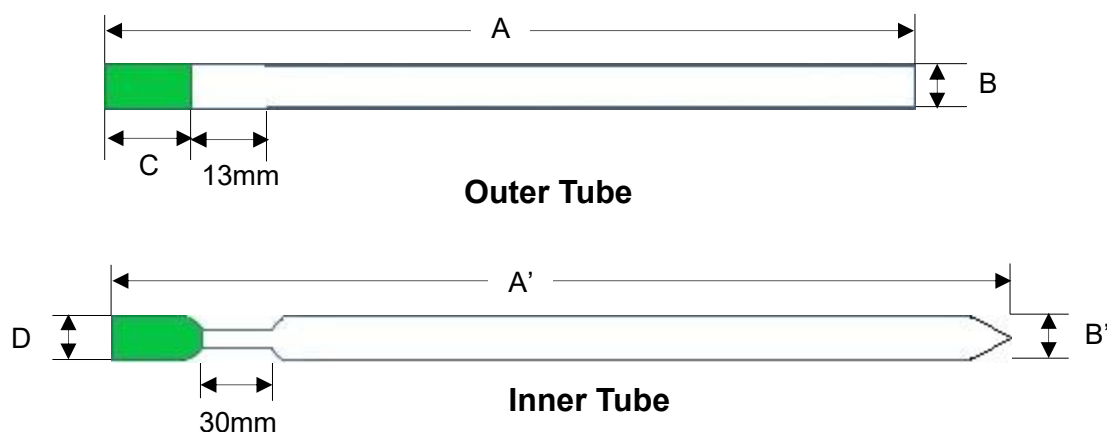
# Thin wall Symmetrical MICRO NMR Tubes for $\text{CDCl}_3$



Parts N.O.		Outer Tube(mm)				Inner Tube(mm)			Price (1 Set) JPY
		Length A	O.D. B	Mached Glass C	Thin Wall I.D. E	Length A'	O.D. B'	Mached Glass O.D. D	
5mmφ	CMS-005T(B)	180	4.965 +0.005 -0.010	8	4.52	190	4.1	4.17 +0 -0.01	10,000
	CMS-005T(J)	180	4.965 +0.005 -0.010	12	4.52	190	4.1	4.17 +0 -0.01	10,000
	CMS-005T(V)	180	4.965 +0.005 -0.010	15	4.52	190	4.1	4.17 +0 -0.01	10,000
8mmφ	CMS-008T(B)	190	7.98 ±0.01	10	7.5	200	6.9	6.97 +0 -0.01	21,000
	CMS-008T(V)	190	7.98 ±0.01	15	7.5	200	6.9	6.97 +0 -0.01	23,000

Part N.O. : The end character (J) is for JEOL, (B) is for Bruker, (V) is for Varian(Agilent)

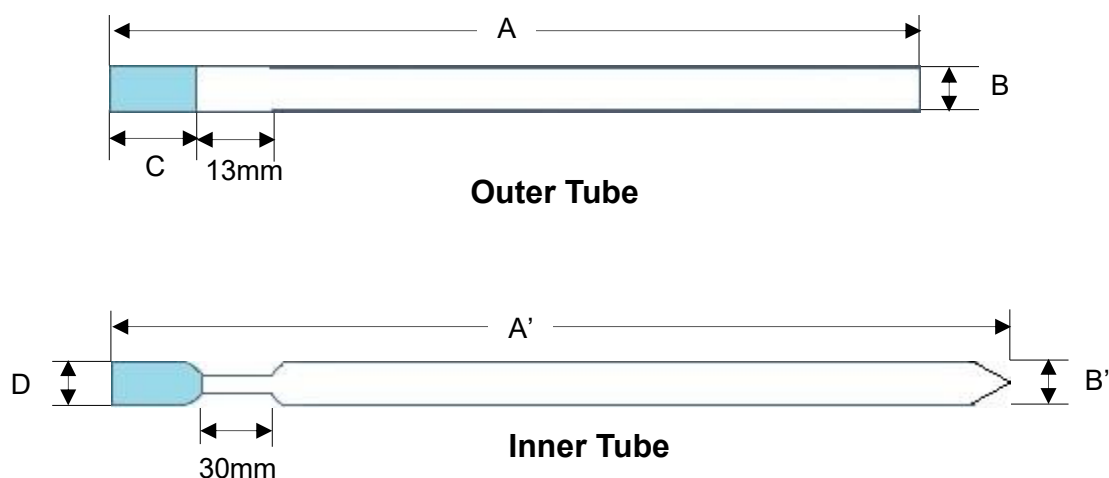
# Thin wall Symmetrical MICRO NMR Tubes for DMSO (CD<sub>3</sub>)<sub>2</sub>SO , Benzene C<sub>6</sub>D<sub>6</sub> , Pyridine C<sub>5</sub>D<sub>5</sub>N



Parts N.O.		Outer Tube(mm)				Inner Tube(mm)			Price (1 Set) JPY
		Length A	O.D. B	Muched Glass C	Thin Wall I.D. E	Length A'	O.D. B'	Mached Glass O.D. D	
5mmφ	DMS-005T(B)	180	4.965 +0.005 -0.010	8	4.52	190	4.1	4.17 +0 -0.01	11,000
	DMS-005T(J)	180	4.965 +0.005 -0.010	12	4.52	190	4.1	4.17 +0 -0.01	11,000
	DMS-005T(V)	180	4.965 +0.005 -0.010	15	4.52	190	4.1	4.17 +0 -0.01	11,000
8mmφ	DMS-008T(B)	190	7.98 ±0.01	10	7.5	200	6.9	6.97 +0 -0.01	18,000
	DMS-008T(V)	190	7.98 ±0.01	15	7.5	200	6.9	6.97 +0 -0.01	20,000

Part N.O. : The end character (J) is for JEOL, (B)is for Bruker, (V) is for Varian(Agilent)

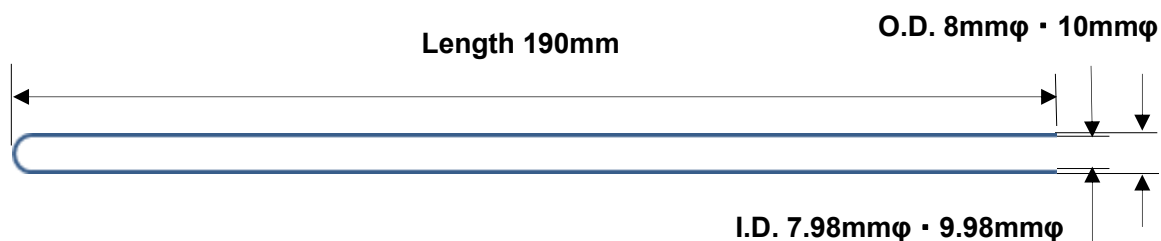
# Thin wall Symmetrical MICRO NMR Tubes for Methanol CD<sub>3</sub>OD, Acetonitrile CD<sub>3</sub>CN



Parts N.O.		Outer Tube(mm)				Inner Tube(mm)			Price (1 Set) JPY
		Length A	O.D. B	Mached Glass C	Thin Wall I.D. E	Length A'	O.D. B'	Mached Glass O.D. D	
5mmφ	MMS-005T(B)	180	4.965 +0.005 -0.010	8	4.52	190	4.1	4.17 +0 -0.01	11,000
	MMS-005T(J)	180	4.965 +0.005 -0.010	12	4.52	190	4.1	4.17 +0 -0.01	11,000
	MMS-005T(V)	180	4.965 +0.005 -0.010	15	4.52	190	4.1	4.17 +0 -0.01	11,000
8mmφ	MMS-008T(B)	190	7.98 ±0.01	10	7.5	200	6.9	6.97 +0 -0.01	18,000
	MMS-008T(V)	190	7.98 ±0.01	15	7.5	200	6.9	6.97 +0 -0.01	20,000

Part N.O. : The end character (J) is for JEOL, (B) is for Bruker, (V) is for Varian(Agilent)

# Precision Large Volume NMR Tubes



Parts N.O.	Dimension (mm)			Tolerance (μm)		Price/a peace (JPY)
	Length	O.D.	I.D.	Straightness	Wall thickness control	
S-8-001	190	7.98 ±0.01	7.03 +0.01 -0	10	15	3,000
S-8-002	190	7.98 ±0.01	7.03 +0.01 -0	10	20	2,500
S-8-003	190	7.98 ±0.01	7.03 +0.01 -0	20	30	2,000
S-8-004	190	7.98 ±0.01	7.03 +0.01 -0	20	40	1,500
S-10-001	190	9.98 ±0.01	9.03 +0.01 -0	10	15	3,000
S-10-002	190	9.98 ±0.01	9.03 +0.01 -0	10	20	2,500
S-10-003	190	9.98 ±0.01	9.03 +0.01 -0	20	30	2,000
S-10-004	190	9.98 ±0.01	9.03 +0.01 -0	20	40	1,800

If you need more volume, see “Ultra Thin wall (page 16)”

Volume comparison (30mm Height)

I.D(φ)	Ultra thin wall		Thin wall
5mm	518μL	25% gain	410μL
8mm	1,347μL	21% gain	1,118μL
10mm	2,109μL	15% gain	1,824μL

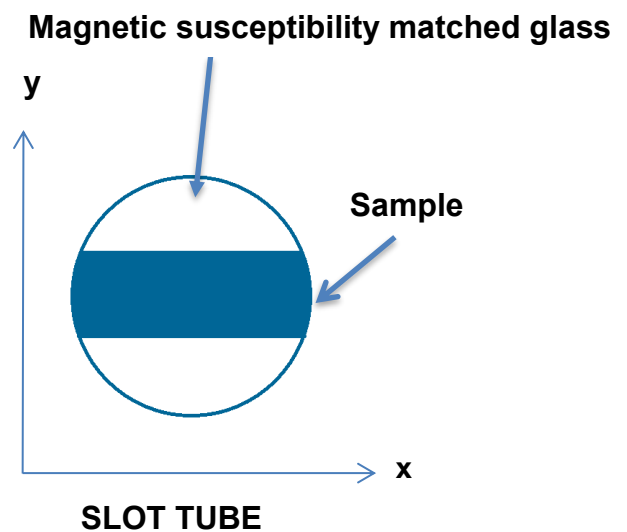
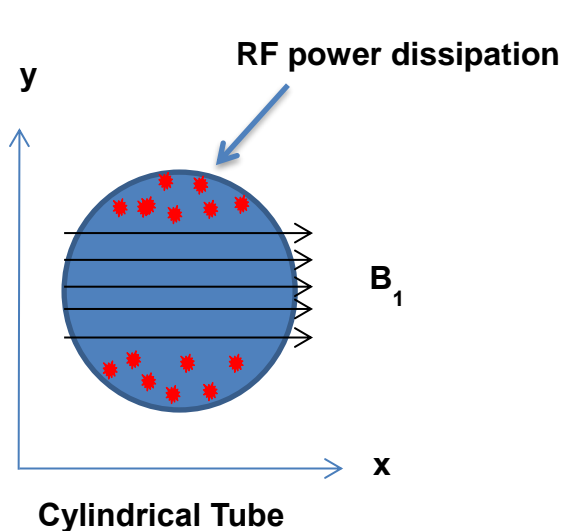
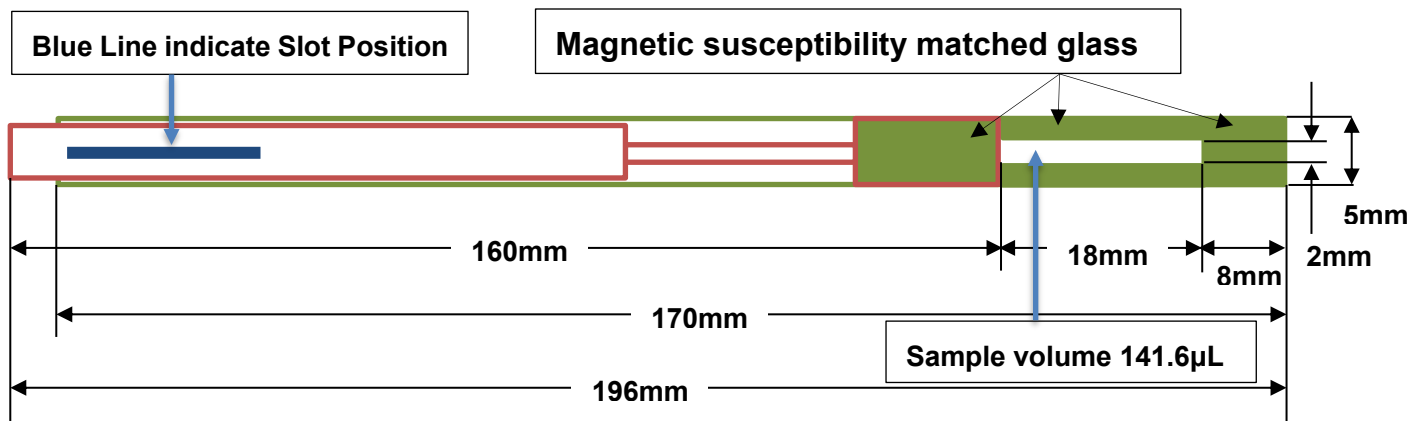
# SLOT TUBE

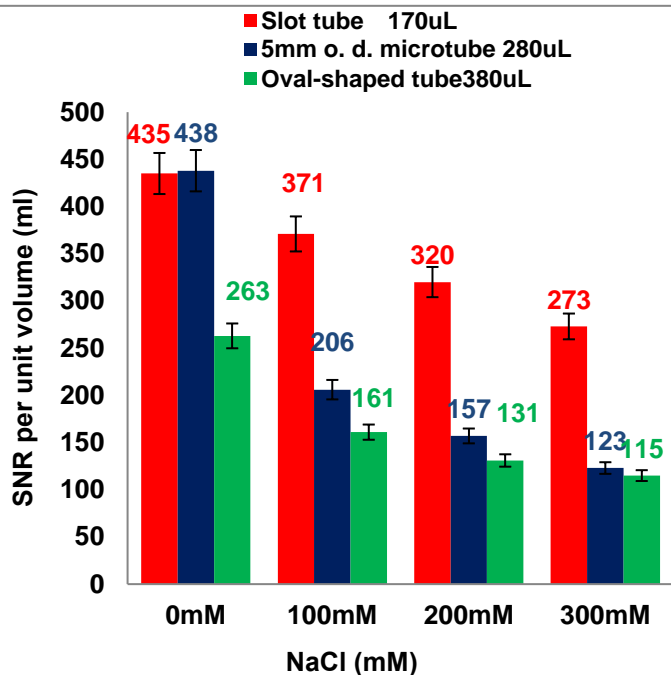
## For High concentration electrolyte samples

The SHIGEMI Slot Tube provides the highest sensitivity and shortest 90 degree pulse width with any probes when working with lossy samples such as proteins in aqueous solutions containing high concentrations of electrolyte as salt.

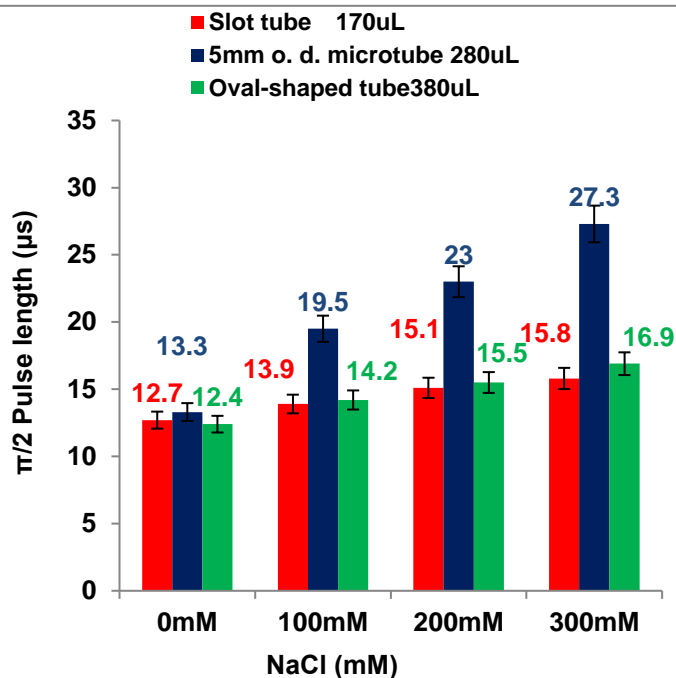
### Benefit

- ★ Avoid the hot spot of RF power dissipation.
- ★ Able to obtain the best S/N ratio than any other NMR sample tubes.
- ★ Provide the shortest 90 degree pulse width than any NMR sample tubes.
- ★ Has already been confirmed working well with a Cryo™ probe (Bruker) 600, 950MHz and a Cold Probe (Varian/Agilent) 600MHz.





SNR per unit volume(ml) in different tubes  
And salt concentrations



$\pi/2$  Pulse length ( $\mu\text{s}$ ) in different tubes  
and salt concentrations

Data acquired at 14.1T (600 MHz Cryo<sup>TM</sup>Probe) for the ubiquitin samples of 0.3mM of [<sup>13</sup>C/<sup>15</sup>N] containing 10mM sodium phosphate

### SLOT TUBE

Magnetic susceptibility matched glass



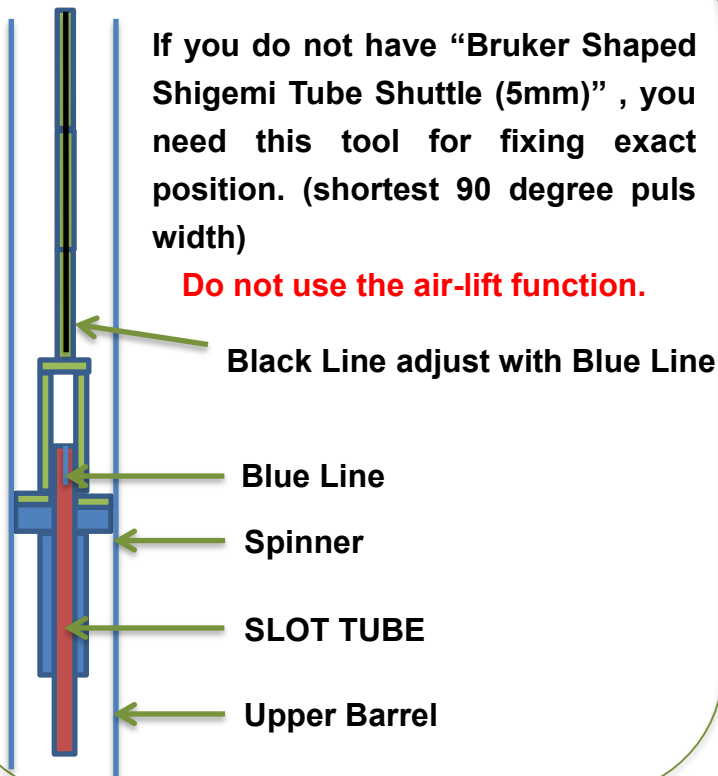
Slot for sample  
144.6 $\mu\text{L}$

SBMS 1 set 25,000JPY

### Positioning tool

If you do not have “Bruker Shaped Shigemi Tube Shuttle (5mm)”, you need this tool for fixing exact position. (shortest 90 degree puls width)

**Do not use the air-lift function.**

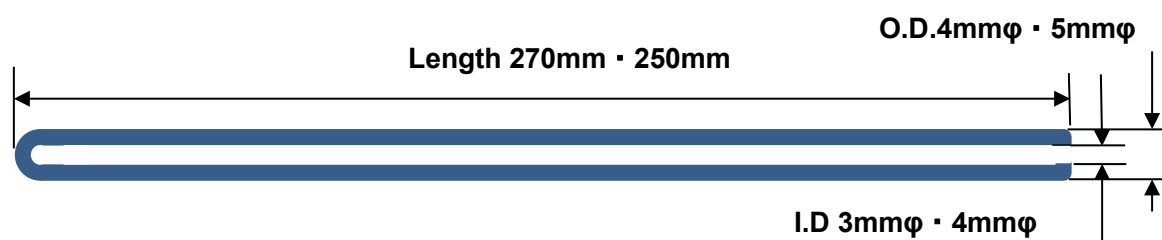


Positioning tool 1 set 150,000JPY



# ESR (EPR) Quartz Tubes

★Made of Fused Silica which is ultra-low background!!



Part N.O.	O.D.	I.D.	Length	Material	Price/ a peace(JPY)
EPS-004J	4mm	3mm	270mm	Fused Silica	2,000
EPS-004B	4mm	3mm	250mm	Fused Silica	2,000
EPS-005J	5mm	4mm	270mm	Fused Silica	3,000
EPS-005B	5mm	4mm	250mm	Fused Silica	3,000

Par N.O. : The end character J is for JEOL, B is for Bruker.

The matrial produce by Shinetsu Quartz Co. LTD

Fused Silica	Metallic impurity (ppm)								OH radical
	Na	K	Li	Mg	Cu	Fe	Ca	Al	
HERALUX-E-LA	<0.05	<0.1	0.05	<0.05	<0.05	0.1	0.5	15	20

# Accessories

## NMR Tube Caps

Parts N.O.	Description	Color	Price/100peaces
CP-005-Y	5mm	Yellow	1,500JPY
CP-005-G	5mm	Green	1,500JPY
CP-005-R	5mm	Red	1,500JPY



## PTFE NMR Tube Caps

Parts N.O.	Description	Price/ a peace
CT-003	3mm	250JPY
CT-004	4mm	250JPY
CT-005	5mm	250JPY
CT-008	8mm	350JPY
CT-010	10mm	350JPY



## FKM NMR Tube Caps

Parts N.O.	Description	Price/ a peace
CF-004	4.1mm	350JPY
CF-005	5mm	350JPY
CF-010	10mm	450JPY



## FKM NMR Tube Caps

Parts N.O.	Description	Price/ a peace
CS-005	5mm	600JPY

