HORIBA Scientific

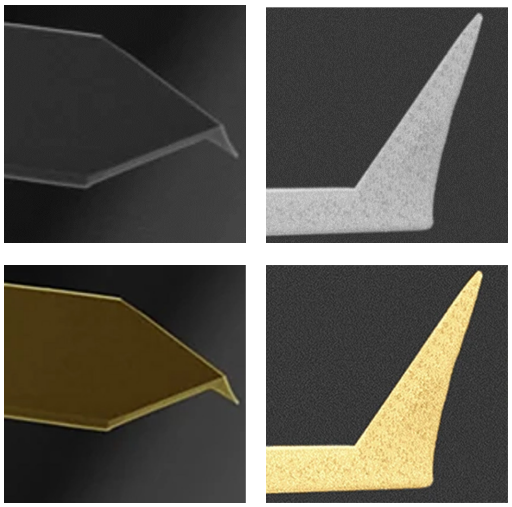
Omni™ TERS Probes

High Enhancement AFM-TERS Probes

- Allow all modes of TERS/TEPL operation: Top, side and bottom optical accesses
- Multilayer structure Tip optimized to minimize interference from silicon material in the spectra
- Innovative package to enhance tip shelf life
- Raman active layers:
  - Ag with protective layers
  - Au layer

Omni™ Tip-Enhanced Raman Spectroscopy (TERS) probes are designed to simultaneously acquire topography and Raman/PL spectra.

The combination of HORIBA's AFM-Raman system with Omni™ TERS probes provides the ideal high enhancement TERS solution.



Manufactured for HORIBA by AppNano

Products

Reference	Description
OMNI-TERS-FM-Ag-1*	1 FM AFM-TERS tip, Raman active layer: Ag with protective layer.
OMNI-TERS-FM-Ag-3*	Set of 3 FM AFM-TERS tips, Raman active layer: Ag with protective layer.
-OMNI-TERS-SNC-Ag-3*	Set of 3 SNC AFM-TERS tips, Raman active layer: Ag with protective layer.
OMNI-TERS-SNC-Au-5	Set of 5 SNC AFM-TERS tips, Raman active layer: Au.
OMNI-TERS-NC-Au-5	Set of 5 NC AFM-TERS tips, Raman active layer: Au.

**The OMNI TERS with a Ag active layer are shipped in a proprietary probe box and an inert gas package for enhanced tip shelf life.*

Cantilever and tip specifications

Material	Si
Coating	Ag/Au
Cantilever shape	Rectangular
Reflex side coating	Ag/Au
Tip shape	Triangular Pyramid
Tip height (µm)	10 - 16

TERS Tips Performance

- **Enhancement factor ~ 10^5 - 10^6**
- **9 out of 10 probes to provide the optical nano-resolution* (< 20 nm spatial resolution)**

**Guaranteed on HORIBA test TERS samples: carbon nanotubes and graphene oxide on gold substrate (Reference: TS001).*

		Value		
Designation	**Parameters**	**Nominal**	**Minimum**	**Maximum**
FM	Spring Constant (N/m)	2.7	0.8	10.0
	Frequency (kHz)	60	30	100
	Length (µm)	245	225	265
	Width (µm)	50	43	57
	Thickness (µm)	2.8	1.8	3.8
SNC	Spring Constant (N/m)	1.5	0.1	8.0
	Frequency (kHz)	80	50	210
	Length (µm)	150	130	170
	Width (µm)	50	43	57
	Thickness (µm)	1.5	0.5	2.5
NC	Spring Constant (N/m)	90	30	250
	Frequency (kHz)	320	200	510
	Length (µm)	150	130	170
	Width (µm)	50	43	57
	Thickness (µm)	5.2	4.2	6.2

The specification range is guaranteed. The values of spring constant and frequency are calculated using mathematical formulation.

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